REGIONAL AND PROPERTY ANALYSIS

FLAMBEAU RIVER STATE FOREST

DRAFT
SEPTEMBER 2008

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DRAFT REGIONAL AND PROPERTY ANALYSIS I SEPTEMBER 2008

ACKNOWLEDGEMENTS

Many individuals from the Department of Natural Resources have developed this plan through an integrated planning process. Through their hard work and expertise, these people have developed a plan that will guide the Flambeau River State Forest into the future.

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INTRODUCTION

SIGNIFICANCE OF THE RPA IN THE MASTER PLANNING PROCESS

The purpose of the Regional and Property Analysis (RPA) is to provide baseline information for developing the property's Vision Statement, Goals, and informing the Alternatives phase of the master planning process according to NR 44. The RPA has four components: Introduction, Regional Assessment, Property Assessment, and Findings and Conclusions.

Regional Assessment
Provides an overview of the current socio-economic, cultural, ecological, and recreational environment in the region and how they affect the property and its use.

Property Assessment
Provides an overview of the existing conditions on the property, including: natural resources, recreational use and facilities, and adjacent land use.

Findings and Conclusions
This section uses the information from the region and property to draw conclusions about the property's niche and serves as the basis for the draft Vision Statement, Property Goals, and Alternatives.

Combined, these sections consider the economic, ecological, and social conditions, opportunities, and constraints associated with the property on a local and regional scale. State Forest master planning goes beyond forest management, spanning a wide range of issues and uses. Examining the role the FRSF plays in north central Wisconsin will contribute to sound, long-term forest planning.

DESCRIPTION OF THE PROPERTY AND REGION

Located in north central Wisconsin in the Village of Winter, the Flambeau River State Forest is located in Sawyer, Price, Rusk, Ashland, and Iron Counties. With just over 90,000 acres, the forest is one of the largest pieces of public land in the region. It is a popular destination for canoeists and kayakers who come to enjoy the rapids and the remote forested nature of the Flambeau River and a traditional hunting area for large and small game. With a vast regional ATV trail network, the forest and surrounding region have also become a destination for ATV riders. And from the late 1800s through the present, the area has produced a variety of important forest products for local and statewide industries.

The forest consists of approximately 90,000 acres in Sawyer, Rusk, and Price Counties with an additional 1,000 acres along the shores of the Flambeau River in Ashland and Iron Counties (The Upper North Fork Flambeau River Natural Area-see Map 2.1 Ownership). Other large public lands in the area include the Chequamegon-Nicolet National Forest and the county forests of Sawyer, Price, and Rusk Counties. The large amount of public land and outstanding natural amenity base in the region provides some of the largest intact forests in the state and provides for a broad range of recreational and ecological opportunities.

PAST MANAGEMENT AND USE

The Flambeau River State Forest was established in 1930. Beginning with 3,600 acres in public ownership, the forest has grown to include over 90,000 acres. In 1904 Wisconsin's first State Forester felt, "the main reason for establishing forest reserves in Wisconsin was to preserve the stream flow in the important rivers… where the greatest rivers of the state rise." The Flambeau River is one of these remarkable rivers; the North and South Forks meet within the Forest to provide over 75 miles of nearly uninterrupted natural beauty.

The desire to maintain the Flambeau River corridor was codified in 1955 by the Department in a report on the "public usefulness and potentialities" of state forests (Wisconsin Conservation Department 1955). Two of the major conclusions of the report relate to the lack of extensive wilderness remaining in the state and the establishment of a "river wilderness zone." In effect, the wilderness zone was created to

"preserve, restore, and maintain the primitive character of the Flambeau River…in a manner… [which] will leave it unimpaired for future generations."

For centuries, the Flambeau River was an important resource for native people. "Flambeau" is translated from French as "torch river." The name is derived from 17th century accounts of European settlers who described Native Americans using torches to illuminate the base of the waterfalls where they speared muskellunge, sturgeon, and other fish. The waterfalls were earlier known as Muskellunge Falls, and they are presently inundated by Lower Park Falls Flowage within the City of Park Falls. In the 19th and early 20th centuries, the river was used by loggers and timber companies for floating logs to area mills and transportation hubs.

As with most of the northern state forests, the FRSF developed from land cutover by lumber companies during the late 19th and early 20th centuries. The 'cutover' period left a mixed cultural and ecological legacy. Forest management activities began in earnest in the mid-1940's with tree harvesting and planting with the long-term goal of developing a regulated harvest schedule. Updating forest reconnaissance for forest management purposes became a priority in the 1970's and continues to the present.

Active forest management and natural regeneration coupled with suitable ecological characteristics has allowed the northern forests, including the Flambeau, to recover, although forest composition, structure, and patch size differ significantly from pre-settlement conditions. The most notable difference between current and pre-settlement cover types is the reduction of hemlock and yellow birch as late successional dominants and the increase of early succesional species such as aspen and birch. Many factors contribute to the decline of hemlock and yellow birch, including poor regeneration due to heavy deer browse, and in this region, windthrow.

Forest composition is significantly impacted by windthrow. These large-scale disturbance events not only shape forest composition, they have enormous ecological and forest management implications. In the past 30 years, there have been approximately 12 large windthrow events on the Forest. An event in 1977 leveled most of a large stand of old-growth hemlock and affected approximately 1/3 of the total FRSF land area.

The Flambeau River has long been recognized as one of the best canoe streams in the Lake States. A broad, fast flowing river with many rapids and rips, and wild wooded shoreline, the river is the defining feature of the forest. Recreation development on the Forest has been guided by the Department's policy to "preserve, restore, and maintain the primitive…nature" of the river since 1955. The Flambeau River still provides some of the longest and most beautiful stretches of river for paddling and boating in the state. The river and forests have been a recreational draw for hunters, fishers, paddlers, and outdoor enthusiasts for decades.

PURPOSE OF STATE FORESTS

State Forests are defined by Wisconsin Statutes 28.04 to assure sustainably managed forests that provide ecological, social, and economic benefits for present and future generations.

PROPERTY SIDEBOARDS

State Forests are managed in accordance with Wisconsin§ 28.04 and are an important part of the Department's broader mission to provide leadership in "all matters pertaining to forestry within the jurisdiction of the state…and advance the cause of forestry within the state" (§28.01). In order to define this mission, the purposes and benefits of state forests are outlined in the following language of 28.04 (2):

(a) The department shall manage the state forests to benefit the present and future generations of residents of this state, recognizing that the state forests contribute to local and statewide economies and to a healthy natural environment. The department shall assure the practice of sustainable forestry and use it to assure that state forests can provide a full range of benefits for present and future generations. The department shall also assure that the management of state forests is consistent with the ecological capability of the state forest land and with the long-term maintenance of sustainable forest communities and ecosystems. These benefits include soil protection, public hunting, protection of water quality, production of recurring forest products, outdoor recreation, native biological diversity, aquatic and terrestrial wildlife, and aesthetics. The range of benefits provided by the department in each state forest shall reflect its unique character and position in the regional landscape.

(b) In managing the state forests, the department shall recognize that not all benefits under par. (a) can or should be provided in every area of a state forest.

(c) In managing the state forests, the department shall recognize that management may consist of both active and passive techniques.

FOREST CERTIFICATION

In 2004, Wisconsin state forests were dual certified under Forest Stewardship Council (FSC) and Sustainable Forest Initiative (SFI) standards. All state and most county forests in the FRSF region are certified by FSC and SFI. In addition to ensuring that raw materials are certified sustainable, the process also confirms that certified forests provide a wide array of ecological benefits through management plans that provide protection of rare, threatened, and endangered species and protection of representative examples of ecosystems.

EXISTING ASSESSMENT REPORTS

Many sources were used for this analysis. To assess recreational resources, the Wisconsin Statewide Comprehensive Outdoor Recreation Report (2005-2010) was used, particularly the Great Northwest and Northwoods Regional Profiles. The Flambeau River State Forest Biotic Inventory (2008) was used for ecological inventories, along with the Natural Heritage Inventory (WDNR), Wisconsin's Strategy for Wildlife Species of Greatest Conservation Need (WDNR 2005), Ecological Landscapes of Wisconsin (WDNR 2006), Wisconsin's Biodiversity as a Management Issue (WDNR 1995), and many other sources listed in the bibliography. Analyses reflect the best available data at the time the RPA was written.

REGIONAL ASSESSMENT

REGIONAL LANDUSE, OWNERSHIP, PATTERNS, AND TRENDS

The FRSF covers approximately 90,000 acres in five counties (Sawyer, Price, Rusk, Ashland, and Iron). Since nearly all population, economic, and land use information currently available is organized and presented by county, the "region" for this part of the analysis will include all portions of these counties (Map1.1: Regional Ownership). This region comprises about 9.6% of Wisconsin. This is the socioeconomic area that has the most effect on and is most affected by the State Forest.

POPULATION CENTERS

The population of the five county region has slowly but steadily climbed over the last several decades, from 62,000 in 1970 to 73,000 in 2007. Sawyer County has experienced the largest population growth in the region over this period, climbing from 9,700 to over 17,000 residents in 2007. The other four counties have experienced very slow or negative population growth over the last decade. The region's population as a whole is projected to remain at this level through the year 2030, substantially below the state average.

The age profile of the region's population is expected to increase as the "baby boomer" generation ages. Although the overall population in the region is expected to remain relatively constant, the number of deaths is projected to exceed births over the next several decades. This decrease is projected to be offset by a continuation of in-migration of new residents, many of whom are likely to be older residents. Together, these trends will result in a dramatic increase in the 60 and older age cohort, from 25% of the population in 2005 to nearly 40% in 2030.

The region is sparsely populated and largely rural, with most of the growth and housing development occurring in small villages and rural towns, with few urban centers. The FRSF is located near Winter, which has a population of approximately 350. Nearby communities include Phillips and Park Falls to the east, Hayward to the northwest, and Ladysmith to the south. Ladysmith is the largest of these communities with a population of approximately 4,000. Minneapolis/St. Paul, Minnesota, approximately 175 miles to the west and the source of many visitors, is the largest metropolitan area near the FRSF. Other cities relatively near include Eau Claire, Superior, and Wausau. (Map 1.2: Regional Population Centers).

The number of seasonal homes decreased slightly from 1990 to 2000, while the number of occupied housing units (i.e., used as a permanent residence) modestly increased. This likely is the result of some seasonal residents in the region converting their status to permanent residents. Nonetheless, seasonal homes comprise 31% of the housing units in the region, which is one of the highest rates in Wisconsin. As seen elsewhere in the state, with the increase in the number of retirees living here, household size has declined (see http://factfinder.census.gov/).

LAND-USE PATTERNS

Land use in the five-county region is dominated by forestry, both on private and public lands. With approximately 75% of the region in forest cover, production of wood products (both pulp and saw-timber) is the primary land use. Given the soils and climate in the area, agriculture comprises only about 15% of the region's land use. Less than 1% of the land area is in residential, commercial or industrial uses.

The abundant natural amenities of the region, including lakes, forests, and rivers, also attract seasonal residents, tourists, and in-migrating retirees to the region. This in turn has led to a rise throughout the region in housing adjacent to these amenities. Many previously forested areas, for example in the area just south of the FRSF, have been converted to other land uses with the remaining forest cover often highly fragmented.

Road density is relatively low and several large roadless blocks are present in the area (The Nature Conservancy 2002). The FRSF is not located on any of the state's inteterstates. It is accessed by U.S. Highway 8 or State Highways 70 and 13,

which are major regional transportation corridors. County Highways M and W are the major roads into the Forest. There are approximately 55 miles of township roads on the forest that access remote private residences and recreation sites. Some of these are gravel or unimproved forest roads.

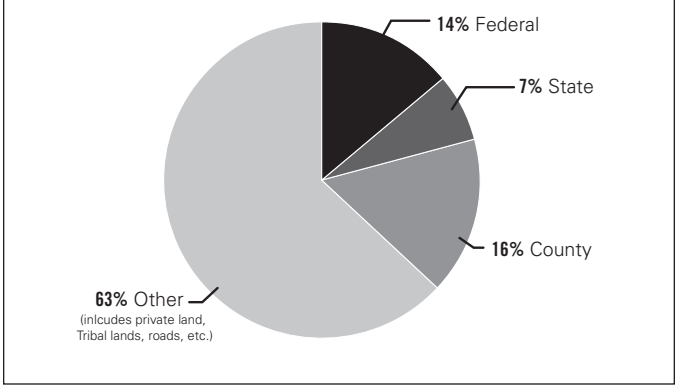
LAND OWNERSHIP

About 40% of the land in the five-county region is publicly owned, the vast majority in National, State, and County Forests (Map1.1: Regional Ownership). The FRSF is the largest state owned property in this five-county region, the bulk of which is in southeastern Sawyer County. A separate "unit" of the forest, the Upper North Fork Flambeau River Natural Area is approximately 1,000 acres, consisting of a 300 foot wide buffer along 15 miles of the Flambeau River northeast of the city of Park Falls. The total acreage within the FRSF project boundary is approximately 97,000 acres; of which about 92,000 are in state ownership and about 5,000 acres are private in-holdings.

In addition to the FRSF, other large public lands include the Chequamegon-Nicolet National Forest (450,000 acres), county forests (530,000 acres), Kimberly-Clark State Wildlife Area (8,700 acres), and other state lands such as state fishery and natural areas.

The other form of large landholding in the region is private industrial forests, which comprise approximately 10% of private ownership. These forests are actively managed and provide pulp and saw timber to the wood products industry. Historically most of these lands were enrolled in one of the state's forest tax law programs (MFL and FCL), which provided public access for hunting, fishing, hiking, cross-country skiing, and sight seeing in exchange for lower tax rates. Divestment of these land holdings is occurring across the state, with frequent changes in ownership and conversion to other uses. As these lands become unavailable for public use, there is greater pressure on public lands to provide this benefit. In addition, loss of large blocks of industrial forest and conversion to non-forest uses, such as recreational properties, further fragments the landscape.

FIGURE 1.1 LAND OWNERSHIP IN THE FIVE-COUNTY REGION



Source: WI Department of Administration, Demographic Services and US Census Bureau

Not only has the amount of public access to these large private industrial forests been reduced, new landowners often have different forest management goals and planned uses. Industrial forest lands have traditionally been important sources of forest products for local mills (and likewise have been important components of the local economy). The shifts in use and management of these lands have reduced the level of harvest in many areas.

Related to both the increase in seasonal residents and the fragmentation and development of some of the land that used to be devoted to forest production is the rise in property values in the region. The sale price of forest land in the five-county region has increased an average of 10%/year from 2000 to 2007 (jumping from $845 to $1432/acre). Similarly, the increase in the number of ownership parcels and residences has increased. The total assessed value of land and improvements in the region 12.6%/year from 2002 to 2007. Sites associated with lakes and large rivers have long been the most valuable land in the region (see http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Land_Sales/index.asp and http://www.revenue.wi.gov/equ/2007/eqstrat.html).

SOCIO-ECONOMIC TRENDS AND CONDITIONS

The region's economy has long been centered around the forest products industry, including both the production of raw material and the manufacturing of various equipment and products (e.g., windows and doors). With the large percentage of public lands here, the tourism industry also plays an important role.

Globalization and the divestment of landholdings by large industrial forests are changing the traditional forest products industry. The industry and its raw material supply/demand flows are extremely complex, often described as a "spider web" of interdependence (Wisconsin's Northern State Forest Assessments 1999). The reduction or expansion of timber supply from an individual property usually does not cause an instant change in price. Over time however, raw material supply will create changes in price.

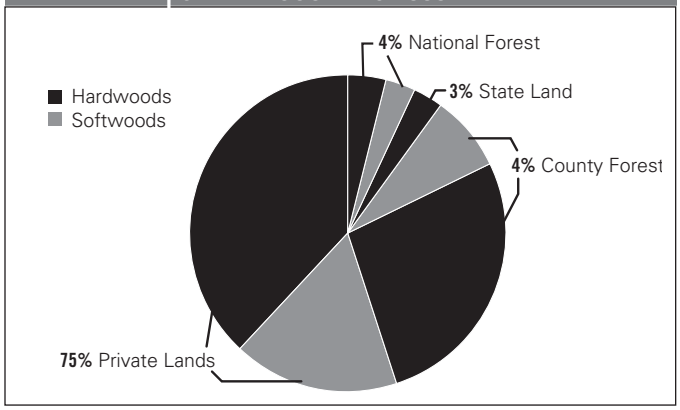
Timber harvests from state forests are intermingled with timber supplies from other land owners in the region. Changes in the supply of timber (by type or volume) from public lands, particularly County Forests, will have an effect on timber prices and wood processing industries; not simply within this region, but throughout the Lake States (Socioeconomics in Northwest

Wisconsin 1999). Figure 1.2 shows timber harvests in Price, Rusk, and Sawyer Counties.

Forestry and Timber Products

Timber production and wood processing remain important economic contributors to local and regional economies in this area of the state. As seen in Table 1.1 below, the wood based and forest products industries are important components in the three county area surrounding the forest. This is especially true in Sawyer and Rusk Counties, where these sectors provide 20% and 25% respectively, of the jobs in these counties. Tables 1.2 and 1.3 show the acres harvested and cord equivalents from County Forests and the FRSF. Many of the forest products from the Flambeau River State Forest are used locally such as Flambeau Papers and Park Falls Hardwoods in Park Falls, Futurewood and LP in Hayward, and Biewer Sawmill in Prentice. Products are also taken to other parts of Wisconsin

FIGURE 1.2 TIMBER HARVESTS (CU FT/YR) BY OWNERSHIP IN PRICE, RUSK AND SAWYER COUNTIES 2006



Source: FIA Data, USFS

TABLE 1.1 RELATIVE IMPORTANCE OF WOOD-BASED SECTORS FOR SAWYER, PRICE, AND RUSK COUNTIES SOURCE: SUMMARY OF COUNTY ECONOMIC SECTORS, 2003 FOR SAWYER, PRICE, AND RUSK COUNTIES.

COUNTY AND SECTOR	INDUSTRY OUTPUT (MILLIONS OF DOLLARS)	EMPLOYMENT (NUMBER OF JOBS)	EMPLOYEE COMPENSATION (MILLIONS OF DOLLARS)
Sawyer			
Wood Based Sectors			
Agriculture, Fishing & Hunting	5.5%	5.0%	10.0
Forest Products & Processing	7.1%	6.9%	6.2
Price			
Wood Bassed Sectors			
Agriculture, Fishing & Hunting	4.0%	6.4%	5.0
Forest Products & Processing	28.2%	18.9%	23.3
Rusk			
Wood Bassed Sectors			
Agriculture, Fishing & Hunting	11.2%	11.8%	10.0
Forest Products & Processing	23.0%	24.5%	26.7

Source: Summary of County Economic Sectors, 2003 for Sawyer, Price, and Rusk Counties.

TABLE 1.2 ACRES HARVESTED ON COUNTY FOREST AND THE FRSF

		ACRES HARVESTED					
OWNERSHIP	APPROXIMATE ACRES	2003	2004	2005	2006	2007	5 YEAR AVERAGE
Price County Forest	92,000	1,244	1,467	2,010	1,330	2,340	1,678
Rusk County Forest	89,000	3,673	2,439	6,011	1,623	3211	3,391
Sawyer County Forest	114,800	1,636	1,980	3,008	3,024	2,169	2,363
FRSF	90,000	1,561	993	223	268	1,372	883

Source: Wisconsin County Forests

or to other states such as Minnesota and Michigan. These mills include SAPPI, New Page, Potlatch, PCA, Kretz Lumber, and Domtar to name a few.

LABOR FORCE

The region's labor force is experiencing similar trends to the state's overall labor force. Although the unemployment rate is higher in the region than the state average (6.0% vs. 4.7%), employment over the past decade has been generally increasing and unemployment rates have been decreasing. Also consistent with statewide trends, the average age of the labor-force-age population (16 years and older) will climb dramatically with the aging of the "baby boomer" generation. The labor force is also seasonal, with employment typically peaking in late summer and unemployment peaking in early spring.

JOBS AND WAGES

As seen in Table 1.4 below, the largest employment sector is manufacturing. Nearly half of the region's manufacturing industry is associated with local timber production and wood processing. Not only does this segment of the economy provide a significant number of the jobs, with an average wage of $30,000/yr or more, they tend to be among the higher paying jobs in the region. Equally important, for every job in the forest products industry, an additional two jobs are generated and supported elsewhere within the economy (e.g., accountants, sales representatives, transportation workers, etc.).

Although there are many jobs associated with the leisure and hospitality industry in the region, tourism sensitive sectors are difficult to separate and identify, in part because they also service local demand. These jobs, which include the areas of entertainment, outdoor recreation, accommodations, and food services, tend to be among the lowest paying jobs in the economy and thus contribute only a modest amount to the region's overall payroll figure. Additionally, these jobs are often part-time and seasonal, contributing to low median wages.

INCOME

All counties in the region have significantly lower per capita personal income (PCPI) than the state (about 75% of state's PCPI). This is consistent with non-metropolitan counties elsewhere in the state, particularly those with relatively high percentages of workers in service sectors. Not surprisingly, most personal income in the region is derived from the wages workers receive. Yet, a significant amount of personal income in the region is derived from two other sources – property income (about 20% of total personal income) and transfer receipts (about 25%, most of which are Social Security, Medicare and Medicaid payments). This is expected, given the large number of seasonal houses and older population.

TABLE 1.3 TOTAL CORD EQUIVALENTS FOR COUNTY FORESTS AND THE FRSF

		TOTAL CORD EQUIVALENTS					
OWNERSHIP	APPROXIMATE ACRES	2003	2004	2005	2006	2007	5 YEAR AVERAGE
Price County Forest	92,000	23,044	25,796	35,237	24,060	38,923	29,412
Rusk County Forest	89,000	27,610	27,729	76,322	23,972	46,880	40,502
Sawyer County Forest	114,800	24,232	29,398	52,019	59,538	27,217	38,480
FRSF	90,000	25,925	22,617	4,118	4,233	18,841	15,146

Source: Wisconsin County Forests

TABLE 1.4 2006 EMPLOYMENT AND WAGES BY INDUSTRY SECTOR IN THE REGION (WISCONSIN)

INDUSTRY SECTOR	EMPLOYMENT		TOTAL PAYROLL		EMPLOYMENT	TOTAL PAYROLL
Natural Resources	409	1.4%	$10,759,661	1.3%	0.8%	0.6%
Construction	1,457	4.9%	$55,445,176	6.8%	4.7%	5.7%
Manufacturing	6,707	22.4%	$227,388,779	27.8%	18.4%	22.9%
Trade, Transportation, Utilities	5,142	17.1%	$122,922,945	15.0%	20.3%	17.6%
Information	325	1.1%	$8,847,465	1.1%	1.9%	2.3%
Financial Activities	1,046	3.5%	$28,603,526	3.5%	5.8%	7.6%

Source: WI Dept. of Workforce Development, County Workforce Profiles

RECREATION RESOURCES

The Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP) classifies and measures the preferences and needs of a statewide recreating public and is an invaluable tool in understanding the supply and demand of regional recreation. The plan is updated every five years, informating and shaping recreational planning on state properties. The FRFS is unique from a recreational planning perspective because it straddles two very different SCORP regions, the Great Northwest (Douglas, Bayfield, Ashland, Sawyer, Rusk, Baron, Washburn, Burnett, and Polk counties) and the Northwoods Region (Iron, Vilas, Florence, Forest, Langlade, Lincoln, Oneida, Price, and Taylor counties). However, in terms of recreational interest, the FRSF best identifies with activities and interests that occur in the Great Northwest Region. The appeal of this region serves visitors seeking a "wild and remote" outdoor experience (Map 1.3: Regional Recreation).

To understand the differences between the Great Northwest and the Northwoods SCORP regions, one can compare and contrast the FRSF with the Northern Highland-American Legion State Forest (NHAL) just 70 miles to the east. The NHAL receives an entirely different mix of recreational users. While double the size, the setting is very different. Numerous small tourist towns and lake communities dot the landscape, and recreational activity is diverse and intense; maximizing area resources during peak times.

A primary reason for the differences between the state forests is the location of the NHAL in the state's "lake district." The hundreds of lakes and natural resource amenities in the region are a draw for seasonal and recreational home development. The area surrounding the NHAL is one of the most rapidly expanding tourism centers in the region, with seasonal housing accounting for more than half of all the housing in many of these counties.

Comparatively, recreational activity on the FRSF and surrounding area is less busy. Towns are rural and widely dispersed and large blocks of public land surround the forest. The Chequamegon-Nicolet National Forest as well as Price, Rusk, and Sawyer County forests adjoin the FRSF boundary in all directions. Due to its more remote location and large blocks of public land, the FRSF provides a less fragmented, less intensely used block of public land than the NHAL.

REGIONAL RECREATION SUPPLY AND DEMAND

The following sections describe the recreation demand in the region, the supply of opportunities, and trends and issues for future use. Analysis of the FRSF regional recreation is drawn primarily from the 2005-2010 SCORP report. SCORP divides the state into eight planning regions based on a collection of natural resource and tourism assets. The Great Northwest and Northwoods regions have significant natural resource amenities, such as lakes, forests, and rivers which draw recreationists and seasonal homeowners from outside the region.

The most popular activities in Wisconsin are water-based with nearly 50% of all residents participating in a variety of water sports. The Northwest Region has the highest participation rates in water-based recreation in the state. Nature-based recreation involves 38% of Wisconsin residents. A typical nature-based visitor wants to experience natural surroundings – hiking, camping, visiting wilderness areas. Come winter, snow and ice-based activities involve 44% percent of Wisconsin residents.

Recreational demand in the Great Northwest Region is largely determined by Wisconsin residents but is also influenced by out-of-state visitors. Minneapolis and St. Paul, Minnesota are about a 3 ½ hour drive from FRSF. Although more than twice as far from the forest, residents from the Chicago, Illinois area also recreate here. Popular regional recreational pursuits among these groups include: fishing, sight seeing, camping, picnicking, hiking, birding, boating, canoeing and downhill skiing.

Popular outdoor recreational activities on or near the forest (among all participants) in the Great Northwest Region of the SCORP study include: boating, swimming, fishing, picnicking, camping, visiting wilderness or primitive areas, day hiking, big & small game hunting, canoeing, snowmobiling, snowshoeing, backpacking, migratory bird hunting, ATV riding, biking, snow and ice activities, off-road 4-wheel driving (SUV), and cross-country skiing. Table 1.6 compares the top recreation demands in Wisconsin and the Great Northwest Region.

To analyze recreation demand and supply, it is important to evaluate within the specific context of a given region.

TABLE 1.5 SEASONAL HOUSING AND TOURISM

COUNTY	POPULATION	HOUSING UNITS	% SEASONAL	% EMPLOYED IN TOURISM
Price	15,822	9574	26.30%	6.20%
Rusk	15,347	7609	15.10%	6.20%
Sawyer	16,196	13722	48.50%	16.80%
Total	47,365	30905	29.97%	9.73%
**Wisconsin	5,363,675	2,534,075	6.10%	7.30%

Source: Wisconsin SCORP 2005-2010. Regional Demographic Profile, Great Northwest and Northwoods

Compared to other regions, The Great Northwest region has a large geographical extent and low population. A metric used to study the relative abundance or scarcity of a recreation resource (recreation location quotient-RLQ) allows comparison to other regions even though their population and area size differ. The RLQ helps to evaluate what a region's recreation niche may be and where supply is lacking. Overall, the northern half of Wisconsin is providing abundant outdoor recreation for its population but for its large geographical area, it could be providing more "nature-based", "snow and ice", and "viewing and learning" opportunities (see SCORP 2005 for descriptions of these categories).

WATER BASED RECREATION

Recreation along, on, and in our waters is important to the character and quality of life in Wisconsin and supports a vital tourism industry. From lakes and flowages to rivers and streams, the supply of various water resources in the FRSF region is extensive. In Rusk, Price, and Sawyer Counties alone there are over 79,000 acres of lakes and over 70 miles of remote and scenic river. The Turtle Flambeau Flowage, the head of the Flambeau River in Iron County, is 33,820 acres. The Chippewa Flowage in northwest Sawyer County is 15,300 acres. Both are excellent fisheries with spectacular natural scenery.

TABLE 1.6 STATE AND REGIONAL RECREATIONAL PREFERENCES

ACTIVITY	% WISCONSIN	% GREAT NORTHWEST
Boating (any type) streams, etc	47.6	56.2
Swimming in lakes,	45.8	52.9
Snow/ice activities (any type)	44.4	48.7
Freshwater fishing	40.7	49.4
Visit a wilderness or primitive area	38.3	62.2
Motor boating	36.4	44.1
Day hiking	35	42.7
Hunting (any type)	21.7	37.3
Canoeing	20.5	29
Snowmobiling	18.3	26.5
Off-road 4-wheel driving (SUV)	17.7	22.7
Developed Camping	32.3	30.5
Coldwater fishing	13.9	17.1

Source: WI SCORP 2005-2010

The Flambeau River

The Flambeau River is a significant river resource in Wisconsin. It meanders 150 miles southward from the Turtle Flambeau Flowage, southwest of Mercer, Wisconsin, in Iron County, through Ashland, Price, and Sawyer Counties to its confluence with the Chippewa River at the southern edge of Rusk County. High water quality, year round water levels for paddling, "wild" shoreline, occasional whitewater drops and the opportunity for multi-day canoe trips with secluded campsites, make this truly one of Wisconsin's unique recreational resources. Only the Namekagon-St. Croix River National Scenic River offers a comparable experience. While other rivers in the region, such as the Brule provide paddling opportunities, the secluded, river accessible campsites on the Flambeau provide a more remote camping experience than a campground. The FRSF also contains 10 miles of the smaller South Fork of the Flambeau River.

For decades the Flambeau River has been described as a "canoe trail" in recreation guidebooks." The Flambeau River has long been recognized as one of the best, if not the best, white-water canoe trip in the Midwest. Each year brings new friends to its waters to enjoy its miles of shaded shorelines and its roaring rapids.

A number of river-based paddle sport opportunities exist within the region. High quality water resources and a network of glacial watersheds throughout northern Wisconsin provide water recreation of all types. In addition to the Flambeau River, the region includes the St. Croix, the Namekagon and the Bois Brule River. Each of these rivers varies in character, size, flow, and surrounding vegetation and land forms. Additional canoe opportunities exist in the region but are less popular due to difficult access, frequent low water, poor water quality, and in-stream hazards (WDNR State Forest Assessment 2001).

The Flambeau River is somewhat unique in the region due to the diversity of resources and recreational opportunities the river and forest provides. It, too, offers wilderness-like, remote recreational experiences and protected shoreline, but all within the borders of a large block of managed public forest land. This scenic river resource presents a blend of fishing, boating, swimming, camping, and wildlife viewing opportunities.

LAND BASED RECREATION

As with water based recreation, the large amount of public land in the region provides an abundant supply of land-based recreation opportunities. Tourism is a large and growing industry here and the demand for facilities and trails is increasing from visitors to the region (SCORP 2005). The region has an established set of trails for biking, skiing, hiking, horseback riding, ATV riding and snowmobiling (Table 1.7). Trails are located in the Flambeau River State Forest, the Chequamegon-Nicolet National Forest, and local county forests. Trails in the region

tend to be multi-use and occasionally are designated as single use. Most trails are for hiking, biking, horseback riding, and ATV riding in the warm season and cross-country skiing, snowmobiling, or ATV riding in the winter. Multi-use allowance can create a single use trail situation when motorized and non-motorized recreation use the same trails. For example, even though bicycles are allowed on the Tuscobia Trail, the trail is largely used by ATVs.

The following sections describe the regional supply and demand for some popular land-based recreational activities in the Great Northwest region, including the FRSF.

Biking

Demand for biking opportunities is high across the state for Wisconsin residents. Mountain or off-road biking is the fifth most popular nature-based activity and road bicycling is the sixth most popular activity in a developed setting (SCORP).

Road Biking

There are few designated bicycle trails in the region and biking on local roads and highways can be challenging due to narrow shoulders. Price County offers 12 "road routes" totaling 167 miles. These routes provide scenic bicycling opportunities on county and town roads. Demand for road biking is high in the Northwest region; 43% of those surveyed participate in this activity and consider the lack of designated trails an important issue (SCORP).

Mountain Biking

While trails for mountain biking are abundant in parts of the region, biking opportunities on or near the forest are limited. Demand for mountain biking in the Northwest Region is 28% of those surveyed (SCORP). Sawyer County provides several levels of off-road and mountain bike trails ranging from highly challenging to family-friendly. There are approximately 211 miles of bicycle trails in the Great Northwest region (SCORP), an insufficient amount for demand. There is roughly one major family-friendly off-road bike trail in each county in the region.

TABLE 1.7 RECREATIONAL TRAIL MILES BY TYPE IN SAWYER, PRICE, RUSK, AND TAYLOR COUNTIES

ACTIVITY	EXISTING MILES	TRAIL TREAD
Cross-country Skiing	280	Grass/dirt
Equestrian	49	Grass/dirt
Hiking	259	Grass/dirt
Mountain Biking	421	Dirt
Snowshoeing	189	Grass/dirt
Interpretive or Nature	25	Gravel or Wood Chips

On the Forest, the Flambeau Hills Ski Trail doubles as a hiking and biking trail, with 15 trail miles in non-winter months. While biking is allowed on the 74 mile Tuscobia State Trail, ATV use during the spring, summer, and fall, make this trail difficult to use by cyclists. The Pine Line Trail (26.2 miles in Price and Taylor Counties) offers a similar trail type with fewer trail miles and without ATVs.

More challenging trails are found on forest roads or single track trails. These include the Blue Hills Trail System (20 miles in Rusk County) or the Sisters Farm Trail System (7 miles in Rusk County). The CNNF has over 100 miles of hard pack twin track, multi-use trails and forest roads open to mountain biking, although ATV traffic is regularly encountered.

Arguably the best collection of challenging mountain bike trails in the state can be found on the CNNF. The Chequamegon Area Mountain Bike Association (CAMBA) manages six areas of trails which range in length from 40-100 miles, mostly in Bayfield and Sawyer Counties. There are 190 miles of trail in Sawyer County.

Cross-Country Skiing

Northwest Wisconsin is a region rich in Nordic skiing tradition and history, with some of the best cross country ski trails in the country. Not only are there hundreds of kilometers of groomed trails, they provide for a range of skill levels; from family-oriented to athletically challenging. Every year over 8,000 skiers and 20,000 spectators from around the world come to Sawyer County to ski the world famous American Birkebeiner cross-country ski race.

The demand for ski trails in the FRSF region is high. Historically, snow conditions are favorable and skiers from southern Wisconsin travel here to find snow. On the Forest, the Flambeau Hills Trail provides 15 miles of trail groomed and tracked for both traditional and skate skiers. Trails near the American Birkebeiner Ski Trail are popular. The Chequamegon side of the CNNF offers many trails, mostly for classic skiing. There are a few municipal and private providers of cross-country ski trails such as the Blue Hills Trail (Rusk County) and the Log Jam Trail (Phillips). County forests provide additional trails in the region.

Hiking

According to SCORP there is a shortage of hiking trails in the Great Northwest. Given the amount of publicly owned land in the area, the shortage may be perceived rather than actual. For example, hikers do not know where hiking is available on the public forests (i.e. old logging roads) and they prefer signed and designated trails. The majority of hiking trails in the FRSF region are on the Chequamegon side of the CNNF. All public lands allow hiking on forest roads and specified trails. Almost

all ski trails are open for hiking when there is no snow on the trails.

Two of only eight National Scenic Trails in the nation run through this region and provide long distance hiking possibilities; the Ice Age and North Country Trails are multi-state trails with segments in various stages of development. Motorized use on these trails is prohibited.

Horseback Riding

There are few designated equestrian trails in the Great Northwest Region. Two such trails are on the CNNF. The 18.5 mile Smith Rapids Saddle Trail and 23 mile Horseshoe Lake Trail are non-motorized and provide an equestrian campground. In Rusk County there are 10 miles of equestrian trail next to the Flambeau River on the Flambeau Mine Copper Park. In addition to designated trails, horseback riding is allowed on all forest roads.

Motorized Recreation

ATVs

There are over 800 miles of winter ATV trails and 400 miles of summer trails in the Great Northwest region (Table 1.8). The trails are highly connected offering many routes over 100 miles in length. Many are multi-use trails and usage is coordinated with snowmobiles and seasons when the trails can be driven on without damage. The Wisconsin Department of Tourism surveyed Wisconsin ATV users and found that the majority travel to areas specifically to ride their ATVs on trails and stay an average of three nights in that location (WDT 2004). This is an important tourism component in the Great Northwest where there are many trails. Twenty ATV clubs exist in the region providing group rides, education, trail maintenance and services to members. The majority of trails are on county and federal land (see Map 1.3). Camping is available on or near the CNNF trails, county forest trails, Tuscobia State Trail, and the FRSF (Table 1.9).

Converted from an abandoned railroad bed, the Tuscobia State Trail is a 74 mile multi-use linear trail that runs through the north end of the Forest. The primary use of the Tuscobia is ATV-riding in summer and snowmobiling in the winter. Other permitted uses are hiking, biking, and equestrian. Motorcycles and licensed vehicles are prohibited. The trail is mostly gravel and natural soil and maintained for motorized recreational vehicles. The trail connects to the CNNF's Dead Horse Trail , peoviding approximaely 130 miles of ATV trail.

TABLE 1.8 ATV TRAIL MILES BY COUNTY

COUNTY	TRAIL NAME	MILES
Sawyer County	All trails	98
Price County	All trails	108
Taylor County	All trails	291
Iron County	All trails	163
Rusk County	Loop connector to Tuscbia and Birchwood	20
Wisconsin State (Sawyer, Price)	Tuscobia State Trail	74
FRSF (Sawyer)	Flambeau River State Forest Trail	38
CNNF (Price)	Flambeau Trail System (Price)	60
CNNF (Ashland)	Dead Horse Trail (links with the Tuscobia Trail, and Stock Farm Bridge Campground as well as ATV routes and trails to Gildden, Clam Lake, and Cayuga.	56
CNNF (Taylor)	Perkinstown Trails	20
Price County	Prentice Bushbenders Winter Trail	
Price, Taylor Counties	Pine Line Trails	26.2
Ashland County	Tri-County Connector	62
Price County	Georgetown Trail	13

TABLE 1.9 REGIONAL ATV CAMPING OPPORTUNITIES WITH TRAIL ACCESS

NAME AND COUNTY	DISTANCE FROM FRSF HEADQUARTERS (MILES)	NUMBER OF CAMPSITES (Access by Car, Trailer, ATV)	ELECTRIC	AMENITIES		
Sawyer County						
Ojibwa Park, Town of Ojibwa	20	3 tent sites along Tuscobia trail	x	Pit Toilets	RV Dump Station	Picnic Area
Price County						
Smith Lake County Park and Campground	35	30 sites with access to Tuscobia trail	x	Showers and flush toilets	N/A	N/A
Sailor Lake Campground	35	20 sites with ATV access to Flambeau River Trail	N/A	Vault toilets	N/A	N/A

Snowmobiling

Snowmobiling is a well-established winter activity in Wisconsin. There are roughly 2,700 miles of state-funded trails in the Great Northwest region (SCORP 2005). Snowmobile and ATV trails often share the same path; ATVs being restricted during certain seasons. The Flambeau River State Forest provides for 55 miles of snowmobile trails and 38 miles of ATV trails. Snowmobiling is a popular winter activity in the region. FRSF trails are linked to the Tuscobia State Trail and to extensive trails systems in Sawyer, Rusk and Price Counties. Table 1.10 lists the regional snowmobile trail miles by county.

Camping

In the Great Northwest Region camping opportunities vary from primitive campsites to modern RV campgrounds with multiple amenities. The FRSF region is characterized by nature-based recreation. Historically, camping in rustic campgrounds has been part of the appeal of the northern forest for vacationers. Federal and State forests are traditional providers of these facilities (Table 1.11).

Camping is a popular recreational activity in the region. There are approximately 1,300 campsites available within a 50 mile radius of the Forest. The majority of these sites are privately-owned with electric hook-ups. About 29% of them are designed for rustic camping. Most of the rustic camping opportunities can be found on municipal, county, state, and federal owned lands.

A typical "rustic campground" has fewer than 75 campsites with moderate development – a tent pad, fire ring, picnic table, vault toilets and parking. Electric hook-ups for RVs (except the campground host's site), and showers, are not provided.

Figure 1.3 shows the current preferences in camping type. Today, 49% of people camping in Wisconsin do so with an RV, whereas 32% are tent campers. RV camping is a growing trend statewide.

The largest supplier of rustic tent camping near the Forest is the CNNF. The National Forest has over 500 sites; most of them near water bodies. Many of the national forest sites allow RVs, but still promote a less developed camping experience.

County forests are the second largest public supplier of campsites in the region (Table 1.12). They offer a greater variety of services such as electric sites, pressurized water, flush toilets, and day use areas than other public campgrounds. Rusk, Price, and Taylor counties each have over 60 sites on county forest land, whereas Sawyer County does not have any campgrounds. Both to the west and south of the FRSF, camping opportunities are limited. Most of the camping opportunities in the area are with the National Forest and Price County to the north and east.

State campgrounds are limited in the region. The FRSF has two rustic campgrounds (total of 59 sites) and 14 canoe campsites along the Flambeau River. The Turtle-Flambeau Flowage has 60 campsites and the Chippewa Flowage has 18 island sites.

Stae forests have traditionally provided rustic camping. In recent years the trend has shifted toward larger vehicles with

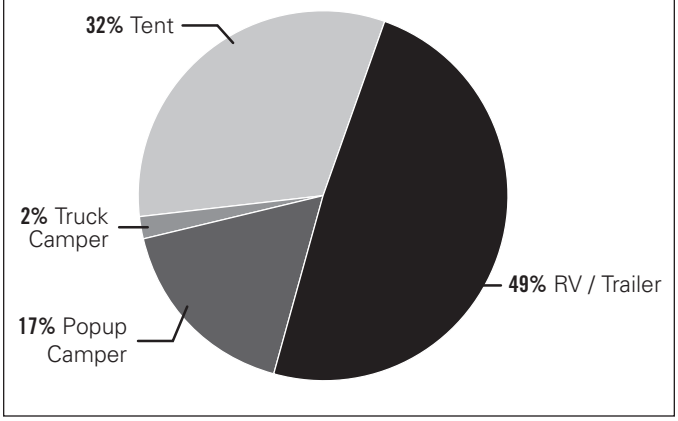
TABLE 1.10 SNOWMOBILE TRAIL MILES BY COUNTY

COUNTY	TRAIL MILES
Ashland	205
Iron	289
Price	365
Rusk	165
Sawyer	528
Taylor	300

TABLE 1.11 PUBLIC CAMPSITES WITHIN A 50-MILE RADIUS OF THE FRSF

REGIONAL CAMPGROUNDS	SITES WITH ELECTRICITY	SITES WITHOUT ELECTRICITY	TOTAL	% OF TOTAL
Federal	0	248	248	0%
State	13	41	54	24%
County	112	40	152	74%
Municipal	127	45	172	74%
Private	681	3	684	100%

FIGURE 1.3 PREFERENCES IN CAMPING BY TYPE



Source: WI SCORP 2005-2010

pull-behind campers and trailers. These larger units often require more space for set-up and parking. Many campers are demanding more amenities and services.

Neither the FRSF nor the flowages have electrical sites or showers. Some campers desire electricity to power their campers or outdoor appliances. Some say that providing electricity is a quieter option than allowing electrical generators for charging camper batteries. In some cases, campers request an electrical source to power health maintenance equipment (e.g. breathing apparatus).

Modern amenities and fully developed campgrounds are typically provided by the private sector, state parks and a few state forests. In general, there are two types of campers: those who want flush toilets, showers and electricity, and those who do not. Some campers feel that adding amenities such as showers, flush toilets and electricity increases competition for campsites at already popular locations, changes camper clientele and changes the camping experience overall. Others feel that features like showers and flush toilets are crucial for a quality camping experience. (Wisconsin's Northern State Forest Assessments, WDNR, 2001). Table 1.11 lists public campgrounds near the FRSF.

Private Campgrounds

Traditionally privately owned campgrounds cater to campers looking for a developed setting with a full range of camping amenities and lodging options. According to the Wisconsin Association of Campground Owners (WACO), there are 10 WACO-member private campgrounds within 50 miles of the FRSF headquarters. The majority offer full hook-ups (water/sewer/electric service) for RVs, and pull-through campsites for large vehicles. Six of the private campgrounds offer additional lodging options – cabins, cottages, or trailer rentals. Only four offer tent campsites. Table 1.13 lists private campgrounds in the region.

Hunting

Hunting is allowed on all undeveloped public property and on industry-owned forest lands in the region. The FRSF, state wildlife lands, county forests and the CNNF provide extensive acreage for a variety of species.

The FRSF region is highly regarded for bear, deer and grouse hunting. Northern Wisconsin features one of the largest Ruffed Grouse populations in the nation. Park Falls, in northern Price County, claims to have the most habitat for Ruffed Grouse anywhere and holds the title of "Ruffed Grouse Capital of the World." Wild turkey hunting is becoming increasingly popular in the region as populations of these birds continue to increase

TABLE 1.12 COUNTY FOREST CAMPSITES IN FRSF REGION

NAME OF COUNTY	NUMBER OF SITES (TOTAL)	ELECTRIC FEE	SEWER	LAKE SHORE	BOAT ACCESS	SWIMMING	PLAY GROUND	PIT OR FLUSH TOILETS	SHOWERS
Ashland	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	20	yes	yes	yes	yes	yes	yes	both	yes
	5	yes	yes	yes	yes	yes	yes	pit	no
	33	yes	yes	yes	yes	yes	yes	pit	no
Price	6	yes	yes	no	no	no	yes	pit	no
	54	yes	yes / dump station	yes	yes	yes	yes	both	yes
	6	yes yes	yes / dump station	yes	yes	yes	yes	both	yes
	30	yes	yes	yes	yes	yes	yes	both	yes
Rusk	15	N/A	N/A	yes	yes	yes	no	pit	no
	15	yes	N/A	yes	yes	no	yes	pit	no
	25	yes	yes	yes	yes	yes	yes	pit	no
	9	yes	N/A	yes	yes	no	yes	pit	no
Sawyer	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Wis. County Forests Assoc.

and expand statewide. The majority of the FRSF region is currently designated in a white-tailed deer "Herd Control Unit" for 2008 due to herd size that exceeds overwintering goals. Additional gun and archery hunting of antlerless deer is allowed to meet reduction goals.

Opportunities exist for hunting camps in the FRSF and CNNF. These camps derive from a deep traditional hunting heritage within the FRSF region.

A variety of hunter-walking trails are available in the FRSF, the CNNF, and county forests. Some are located on existing hiking trails while others are specifically designed for hunters. For those wanting a primitive, non-motorized hunting experience, two wilderness areas on the Chequamegon side of the CNNF, and two wild areas in the FRSF are open to hunting.

Wildlife Viewing

The SCORP report states that roughly 65% of Wisconsinites enjoy viewing and photographing nature and visiting nature centers. The National Forest Service estimates that 60% of visitors participate in nature-related activities such as viewing wildlife and natural features, nature study, visiting a nature center or viewing a forest – overall the most popular activities.

The "Great Wisconsin Birding and Nature Trail" guides the nature traveler to the best of Wisconsin's wildlife watching areas. The Flambeau River State Forest is listed as stop #71 on the Great Wisconsin Birding and Nature Trail system. Other highlights in the FRSF region are the Hay Creek State Wildlife Area in Price County, Blue Hills/ Moose Ear Creek in Rusk County, Totagatic Lake State Wildlife Area in Sawyer County, and Kimberly Clark State Wildlife area in Price County.

Outdoor Education/Interpretation

Lack of educational programs/naturalists/interpreters in the Northwest Region was an issue and need identified among public perspectives in the 2005-2010 SCORP report. Opportunity exists to educate visitors, hunters, campers, back-country and river users about recreational opportunities and facilities on the forest, FRSF management activities, regulations and safety.

Developed facilities for nature education and interpretation are lacking in the FRSF region. The nearest locations are: Hunt Hill Nature Center and Audubon Sanctuary, located 55 miles away in Sarona, WI, and The Northern Great Lakes Visitor Center located in Ashland, WI, 75 miles from the Forest. Two additional centers located farther west include Crex Meadows State Wildlife Area Visitor Center, in Grantsburg, WI and St. Croix River National Scenic Riverway Visitor Center in St. Croix Falls, WI.

TRENDS, ISSUES, AND NEEDS

According to SCORP, various factors influence visitors' travel, visitation, and recreation participation. Recent changes in our economy are an example. Visitor perceptions of recreation issues specific to the Great Northwest Region include:

- Lack of funding for park and recreation maintenance
- Increasing ATV usage and associated impacts
- Lack of outdoor education centers and naturalists
- Overcrowding
- Perception of logging on public lands
- Loss of public access to lands and water
- Noise pollution from motorized activities
- Possible loss of silent sport facilities.

Additional trends and issues that could affect the FRSF include:

- Conflicts between silent sports and motorized uses
- Perceptions of logging on public lands
- Conflicts of access management
- Loss of open industrial forest lands for pubic use

TABLE 1.13 PRIVATE CAMPGROUNDS WITHIN 50 MILES OF THE FRSF

CAMPGROUND	NUMBER OF SITES	FULL HOOK-UP	WATER/ELECTRICITY	PULL -THRU	TENTS	CREDIT	TRAILER RENTAL	CABINS/COTTAGES
Springbrook	34	34	5	0	x	x		x
Spooner	21	0	21	7		x		
Birchwood	20	20	-	-				
Birchwood	17	17	-	16				
Ladysmith	25	0	0	0	x			x
Hayward	219	49	-	120		x		x
Spooner	47	47	0	7				x

Source: Wis. Assoc. of Private Campground Owners (WACO)

- New forms of recreation
- Increasing waterfront development
- Aging population of user groups
- Changes in recreational and seasonal housing
- Increased cost of fuel and travel
- Fragmentation of forest lands; loss of habitat and open space due to land development
- Changing demographics and interests of future generations

Understanding the supply and demand of recreational resources is an important component of planning for recreational opportunities. If there is a demonstrated shortage of a resource, it is important to know what future demand for that resource will be. Table 1.14 lists potential level of demand and supply shortages for activities associated in the Northwest region. This list only includes activities that are consistent with the FRSF's mission or activities the forest can support.

COMPATIBILITY AND CONFLICT

The 2005-2010 SCORP identified the primary concerns of recreation users statewide are: lack of funding for park and recreation maintenance, increasing ATV usage and associated impacts, increasing noise pollution from motorized activities, lack of outdoor education centers and naturalists, overcrowding, and pressure from the logging industry to harvest on public lands.

ECOLOGICAL LANDSCAPE

The National Hierarchical Framework of Ecological Units (NHFEU) is a land classification system used nationwide to describe landscapes, based on climate, soils, and dominant vegetation types. Using the NHFEU classification system as a basis, the WDNR has mapped Wisconsin into 16 distinct Ecological Landscapes. According to the WDNR's system, the Flambeau River State Forest and its surroundings are located in the heart of the North Central Forest Ecological Landscape (see Ecological Landscapes of Wisconsin, WDNR Handbook for more information). The North Central Forest is characterized by heavily forested uplands, forested and unforested lowlands, and a number of major river systems, including the Flambeau, Chippewa, and Jump Rivers.

TABLE 1.14 REGIONAL RECREATION SHORTAGES AND DEMAND

SHORTAGES	LEVEL OF DEMAND
Boat Launches – Carry In	Increasing
Campgrounds	Increasing
Picnic Areas	Increasing
ATV Trails	Increasing
Cross-Country Ski Trails	Stable
Hiking Trails	Stable
Snowmobile Trails	Decreasing
Snowshoe Trails	Increasing
Water Trails	Increasing
Bicycle Trails	Increasing

This Ecological Landscape has a continental climate, with cold winters and warm summers. The growing season averages 114 days (base 32ºF), ranging from 85 to 140 days. The growing season length is average among Ecological Landscapes in the state. The average January minimum temperature is -2°F, and the average August maximum temperature is 79°F. Summer temperatures can be cold or freezing at night in low-lying areas, limiting the occurrence of some flora. Annual precipitation averages 32 (30-35) inches, an average value as compared with the rest of the state. Annual snowfall averages 63 inches, ranging from 24-139 inches, a snowfall typical of northern Wisconsin, but lower than the 71 inches of the Superior Coastal Plain Ecological Landscape.

The pre-settlement vegetation of the uplands was primarily hemlock-hardwoods, with eastern hemlock, yellow birch and sugar maple as the dominant tree species. White pine was also present in this Landscape, mostly as scattered patches or as individual trees within the hemlock-hardwood forests. Other species represented, although far less important, included white ash, basswood, red pine and red oak. Forested wetlands were extensive in the North Central Forest. Wet-mesic forests are better represented here than in other Landscapes, including conifer-dominated white cedar swamps, and hardwood-dominated black ash swamps. Acidic conifer swamps consisting of black spruce and/or tamarack were also common and widespread. Unforested peatland communities such as Muskeg, Open Bog, and Poor Fen were also present throughout this landscape.

The region remains a tree-dominated landscape, with over 80% of the Landscape in forest cover (see Figure 1.4). Species composition has shifted from pre-settlement conditions; northern hardwood stands are now dominant, with sugar maple, basswood, white ash, and red maple abundant and increasing. Remnant pockets of hemlock, yellow birch and white pine are present, but uncommon. Aspen-white birch forest is also a significant part of this Landscape, but declining across the region, with the white spruce-balsam fir type being the least represented. Forested wetlands are still a significant component of this Landscape. Conifer-dominated wetlands are the most abundant type on saturated soils, followed by swamp hardwood, and minor amounts of floodplain forest are present

along some of the larger river systems. All combined the forested areas within this landscape represent over 25% of the total forested acreage in Wisconsin. Unforested wetlands continue to exist in the North Central Forest, including acidic peatlands, alder/willow thickets, and sedge meadows. Agriculture is not completely absent from the North Central Forest, but it does play a minor role in general, comprising just 6% of the North Central Forest.

ECOREGIONS

Using the NHFEU, the Flambeau River State Forest is located with Province 212 - Laurentian Mixed Forest; Subsection 212Xd – Central/Northwest Wisconsin Loess Plains. The FRSF is located within three Land Type Associations (LTA), and these are described below:

- 212Xd02 (Flambeau Silt-capped Drumlins). The characteristic landform pattern is rolling drumlins with swamps common; this LTA has soils that are predominantly moderately well-drained silt loam over acid sandy loam till. Common habitat types (Kotar et al. 2002) are ArAbCo, Lowland, ATM, AOCa, and ACaI. This LTA comprises 16% of the FRSF in the north and east portions of the property.
- 212Xd03 (Exeland Plains). The characteristic landform pattern is undulating outwash plain. Soils are predominantly well-drained silt loam over outwash. Common habitat types are AOCa/AH, Lowland, ACaI/AHI, ArAbCo, TMC, and ATM. This LTA comprises the majority (77%) of the FRSF.
- 212Xd05 (Jump River Ground Moraine). The characteristic landform pattern is undulating moraine and stream terraces. Soils are predominantly somewhat poorly drained silt loam over dense, acid sandy loam till. Common habitat types are ArAbCo, Lowland, AHI/ACaI, AH/AOCa, and ATM. This LTA comprises only 7% of the FRSF in the southernmost portion of the forest and includes the richest mesic forest stands on the property, based on field observations of the ground flora.

NATURAL RESOURCES

Forest Resources

The North Central Forest makes up over 25% of the forested lands in Wisconsin, and some of the largest contiguous blocks of forest in the state occur in this Landscape. Northern Wisconsin has a long tradition as a leading producer of timber products, with a number of both sawmills and pulpwood mills being located in the region. Forest resources form a significant base of the economy in this Landscape (landscape level data from the Draft North Central Forest Ecological Landscape, June 2008).

As previously mentioned, northern hardwoods are the most prevalent forest cover type in this part of the state. Older age classes of this and other cover types are uncommon for most landholdings in the area. Based on 2006 FIA data, there are no forest cover types with more than 1% of their acreage in age classes over 80 years in the 3 counties comprising the FRSF.

Aspen management is an important focus in much of the surrounding landscape, especially on county-owned lands and large industrial forests. Price, Sawyer, and Rusk counties have the 3rd, 6th, and 12th highest acreages of aspen in the state, based on 2006 FIA data. All three of these counties are also in the top 10 counties in the state for total aspen acreage in both the 0-20 and 21-40 age classes. Nearby wildlife areas, such as the Kimberly-Clark Wildlife Area (8,639 acres) maintain extensive areas of aspen and upland brush for game management and Sharp-tailed Grouse habitat. Finally, the three-county forests combined contain over 100,000 acres of aspen.

Wildlife

The region provides excellent habitat for both game and non-game species. White-tailed deer, black bear, ruffed grouse, and furbearers are abundant, and this region attracts hunters and trappers nationwide in pursuit of these species. Relatively uncommon species include occasional moose, increasing numbers of wild turkey, and an introduced population of North American Elk.

Rare Animals

Wisconsin's Natural Heritage Inventory (NHI) Working List includes those species that are listed at the Federal and State level as well as Special Concern Species. As of September 2007 (WDNR 2007), NHI documented 104 rare animal species within this Landscape including 7 mammals, 23 birds, 5 herptiles, 12 fishes, and 57 invertebrates. These include 1 federal candidate for future listing, 10 State Endangered species, 16 State Threatened species, and 77 State Special Concern species.

Rare Plants

WDNR's Natural Heritage Inventory database (NHI WDNR 2007) contains records for 95 vascular plant species occurring within the North Central Forest Ecological Landscape that are currently listed as Endangered (15), Threatened (15), or Special Concern (65) by the state of Wisconsin. The federally Threatened Fasset's Locoweed (Oxytropis campestris var. chartacea) occurs in this landscape and is the only plant listed at the Federal level to date found within the North Central Forest.

AQUATIC RESOURCES

Across the North Central Forest Ecological Landscape flow 4,850 perennial streams, ranging from small headwaters spring flows to some of the largest warm water rivers in the state with high quality habitat. Many rivers and streams here host Species of Greatest Conservation Need (SGCN). Among

these are several that are candidates for designation as Priority Conservation Opportunity Areas including: North Fork Flambeau River; South Fork Flambeau River; lower Flambeau River; and Jump River. Natural lakes and man-made flowages are also abundant, with such popular water bodies as the Chippewa, Turtle-Flambeau and Holcombe Flowages (see Draft North Central Forest Ecological Landscape, June 2008) .

Several rivers in the region have been identified as Outstanding Water Resources (ORW) and Exceptional Water Resources (ERW). Outstanding and Exceptional water resources are surface waters which provide outstanding recreational opportunities, support valuable fisheries, have unique hydrologic or geologic features, and have unique environmental settings. The Property Assessment portion of this document provides more detail. Information and maps related to the wildlife Action Plan and Species of Greatest Conservation Need can be found at this website: http://dnr.wi.gov/org/land/er/wwap/implementation/.

CONSERVATION OPPORTUNITY AREAS

The Wildlife Action Plan (WDNR 2006) identifies three Conservation Opportunity Areas (COAs) associated with the FRSF; these are places in Wisconsin that contain ecological features, natural communities or Species of Greatest Conservation Need (SGCN) habitat for which Wisconsin has a unique responsibility for protecting when viewed from the global, continental, upper Midwest, or state perspective. The COAs comprised by the FRSF (4.10 Upper Flambeau Woods, 4.11 Skinner Creek, and A.41 Flambeau River) are part of a group of COAs characterized by large blocks of forest that provide an opportunity to manage for mature to older age classes. The area features a continuum of an extensive matrix of older northern hardwood forest with imbedded lakes, wetlands, and bedrock including Northern Mesic Forest, Northern Dry-Mesic Forest, Northern Wet-Mesic Forest, Northern Wet Forest, Open Bog, Muskeg, Northern Hardwood Swamp, Northern Sedge Meadow, and Bedrock Features.

Ecological Management Opportunities in the North Central Forest Ecological Landscape

Significant management opportunities in the North Central Forest Ecological Landscape have been identified and highlighted for key ecological features, including: 1) Matrix forest of northern hardwoods and hemlock hardwoods (Northern Mesic Forest) with opportunities to manage extensive interior forest because of the large public land base and large private holdings, potential for high connectivity, restoration of missing features, source areas for many species including forest interior specialists and wide ranging species; 2) White Cedar and Black Ash Swamps; 3) Abundant acid peatlands: Black Spruce Swamp, Tamarack Swamp, Muskeg, Open Bog, Poor Fen; 4) Shrub Swamp and Open Wetland Communities; 5) Forested Watersheds, protecting the water quality and quantity of many lakes and rivers, including headwaters areas; 6) Ephemeral Ponds; 7) Bedrock Features; 8) Miscellaneous Features that provide habitat or other resources that would otherwise not be available.

Specifically, the Landscape provides the following:

- The state's best opportunity to manage for interior mesic forest at a landscape scale.
- Opportunities to diversify forest structure and composition, especially at larger scales, and this can be accomplished via integrated planning, restoration, active management, and protection.
- Diminished forest attributes throughout most of the Landscape include large patches of unbroken interior forest, old growth and old forests of all types, formerly widespread and abundant structural features associated with old growth forest, greater coniferous cover, connections within and across Landscapes, structural features associated with old growth forest, and canopy cover of formerly dominant species such as hemlock and yellow birch.
- Forested wetlands are common and widespread: wet-mesic forests of white cedar and black ash offer great opportunities for conservation, as do the wet forests of tamarack and black spruce.
- This Landscape contains a large public land base, a factor that contributes to ecological, recreational, and economic opportunities. Federal, state, and county ownerships are significant here.
- Large private holdings here include tribal lands, industrial forests, and NGO-led conservation projects.
- The headwaters or other important stretches of ecologically and socio-economically important rivers such as the Wisconsin, Wolf, Chippewa, Flambeau, Black, Pine, Popple, and Oconto are embedded within the extensive forests of this Landscape.
- Lakes are common on certain landforms where they provide key habitats for aquatic and other water dependent organisms.
- Excellent representation of glacial landforms: e.g., ground moraine, end moraine, outwash plain, drumlin, esker, ice-walled lake plain, and water gaps. Each of these may be associated with characteristic vegetation types, aquatic features, species assemblages, and conservation opportunities.
- Concentrations of kettle lakes associated with landforms such as end moraines and collapsed outwash, other lake types occupy poorly drained depressions in ground moraine.

- Areas of glacial till with low relief, fine-textured soils, impeded drainage, and an abundance of ephemeral ponds.
- Extensive and widespread acid peatlands.
- Many locations for white cedar swamp and black ash swamp, some of which are extensive.
- Forested watersheds, some of them very large.
- This Landscape may be a 'source area' for many forest interior species.

These opportunities can be further considered at the property level to provide property specific management objectives that reflect the larger regional opportunities.

PROPERTY ASSESSMENT

PHYSICAL ENVIRONMENT

TOPOGRAPHY AND SOILS

The Forest and much of the surrounding area are underlain by Precambrian bedrock covered by 50 to 100 feet of glacial till. Bedrock exposures are generally restricted to the major river corridors where post-glacial meltwater drainage caused erosion. On the Forest, significant bedrock outcrops are associated with many of the larger rapids, especially along the North and South Forks of the Flambeau River.

The FRSF lies within the terminal moraine of the Chippewa Lobe of the Wisconsin glaciation. Ground moraine of depositional materials predominates, with areas of pitted outwash. There are also extensive areas of undulating outwash plain (Exeland Plains Land Type Association (LTA)) with smaller inclusions of pitted outwash with very hilly topography on the Forest (see Wisconsin Land Type Associations, 1999). The outwash deposits are somewhat narrow, and are associated with post-glacial, meltwater drainage channels. Minor landform features associated with these meltwater deposits include eskers, kames, outwash river terraces, narrow stream-cut ravines, and steep cut banks. A uniform silt loam surface texture is often present on all of the above-mentioned landforms.

Surface soils in the Central/Northwest Wisconsin Loess Plains Subsection range from well-drained to somewhat poorly-drained and include silt loams, loams, and sandy loams over a compact sandy loam till (deposited underneath the weight of the glaciers). The dense till subsoil is tight, limiting downward movement of water and roots. The water table is often "perched" within this subsection. The compact till, firm, silty soils, and the gentle terrain also account for prolonged periods of seasonal wetness, numerous small wetlands, and an abundance of ephemeral ponds found in some areas. Windthrow occurs in some areas due to shallow rooting on these soils (See Map 2.3: Property Soils).

Sandy soils are uncommon on the FRSF. Only two small units are known to occur (Mark Schmidt, personal communication), and the largest of these is on the northern portion of the State Forest near the town of Oxbo (see the "Oxbo Pines" Primary Site). Wetland soils on the FRSF include large areas of poorly drained mucks and organic peats.

WATER RESOURCES AND AQUATIC HABITATS

DESCRIPTION OF LAKES, STREAMS, AND AQUATIC HABITATS

Surface water resources comprise a substantial proportion of the Flambeau River State Forest. Open water, covers about 5.3% of the combined area of the main unit and the Upper North Fork Natural Area. Classified wetlands account for an additional 26.5% of the total land coverage within these property boundaries.

The physical characteristics of the property's seven natural lakes are summarized in Table 2.1. The 3-acre widening on Connors Creek between Lake of the Pines and Connors Lake is locally known as Papoose Lake. The 138-acre Skinner Creek Flowage, the only artificial impoundment on the Flambeau River State Forest, is locally known as Sobieski Flowage.

The surface water inventory on the Flambeau River State Forest includes 160 miles of perennial streams and 30 miles of intermittent streams. The largest streams are the South Fork Flambeau River and the Flambeau River downstream from the confluence of its North and South forks.

SPECIAL DESIGNATIONS

Outstanding Resource Waters

The South Fork Flambeau River, the North Fork in the Upper Flambeau River Natural Area, and Evergreen Lake are classified as Outstanding Resource Waters (Table 2.2) under Chapter NR 102.10, Wisconsin Administrative Code. This special designation affords the highest level of protection in decisions and

actions pertaining to discharges. Outstanding Resource Waters may not be diminished in quality.

Exceptional Resource Waters
An additional 72.7 stream miles are designated as Exceptional Resource Waters (Table 2.2) under Chapter NR 102.11. Exceptional Resource Waters provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, unique environmental settings, and they are not significantly impacted by human activities. Water quality of Exceptional Resource Waters may not be degraded, except as provided in Chapter NR 207.

FISHERY MANAGEMENT CLASSIFICATIONS

Trout Streams—Of the 189.4 miles of rivers and streams within the project boundary, 34.2% are currently classified into three categories of trout streams for fishery management purposes (Table 2.3). No Class 3 trout streams are stocked on the Forest.

Class 1 streams are high quality waters in which wild trout reproduce sufficiently to sustain populations at or near carrying capacity. No stocking is necessary.

Class 2 streams support good survival and some natural reproduction, but not enough to optimize available food and habitat. Therefore, stocking is required to maintain a desirable sport fishery. Class 2 trout streams often produce larger than average trout.

Class 3 streams are marginal trout habitat with no natural reproduction and virtually no year-to-year survival. They require annual stocking to provide put-and-take trout fishing.

Muskellunge Waters—Muskellunge populations are known to occur in three lakes and in portions of two rivers systems associated with the Flambeau River State Forest (Table 2.4). Muskellunge waters are differentiated by the level of natural production and the extent to which muskellunge waters must be stocked. Muskellunge provide an important component of the recreational fishery in the FRSF. Local, visiting, and guided anglers appreciate the abundance and size structure of musky available in these waters.

AQUATIC HABITATS

This section provides a general overview of water quality, aquatic vegetation, habitat improvement projects, and fishery for major lakes, rivers, and streams (Table 2.4) on the property.

Connors Lake
A deep lake with good water quality and thermal stratification. Stakeholders have expressed interest in establishing a lake trout fishery. Ciscoe may be present and half-logs have been installed to enhance smallmouth bass spawning habitat. Fish cribs have been installed as recently as 2008, with experimental stocking of spottail shiners to enhance forage. The lake is currently stocked with walleye and muskellunge.

Lake of the Pines
Large muskellunge fingerlings are stocked in alternate (odd) years at 1/acre.

TABLE 2.1 PHYSICAL CHARACTERISTICS OF NAMED LAKES WITHIN THE FLAMBEAU RIVER STATE FOREST

		CONNORS	LAKE OF THE PINES	SWAMP	EVERGREEN	MASON	PELICAN	CHAMPAGN
Surface Area (acres)		429	273	248	200	190	32	7
Maximum Depth (feet)		82	39	8	25	39	16	12
Average Depth (feet)		38	17	6	12	17	9	
% Surface Area < 3 feet deep		7	7	6	9.45	6.4	7	
Shoreline Length (miles)		4.96	4.89	2.36	2.20	3.50	1.03	0.40
Public Frontage (miles)		1.30	4.24	1.84	0.05	0	0.85	0.28
Substrate	Boulder	--	--	--	--	--	--	--
	Rubble	--	--	--	--	--	--	--
	Gravel	xxx	xx	--	xx	x	--	
	Sand	xx	xxx	xx	xx	xxx	xx	
	Muck	x	x	xxx	xx	xx	xxx	

Mason Lake
Landowner currently allows free public access via private road, no improvements at access.

Evergreen Lake
Occasional algae blooms are moderate to severe, which is surprising given the small drainage area, the low amount of development along the shoreline, and the benign land uses in the forested watershed.

Skinner Creek Flowage (Sobieski Flowage)
Suffers recurrent fish kills in winter when decomposing organic material depletes dissolved oxygen. Consequently, the Department manages this impoundment for furbearers and waterfowl, rather than as a recreational fishery. Despite its history of chronic winterkill, Sobieski Flowage receives some fishing pressure from anglers seeking bullheads and northern pike, which can tolerate low oxygen concentrations or move upstream to find suitable conditions in tributary streams.

North Fork Flambeau River
The Aquatic habitat and shorelines were severely altered by log driving practices. Water quality was severely impaired by industrial discharges from wood processing and paper manufacturing in Park Falls, with massive fishkills documented in 1920's. With improved water treatment and decreased discharge, water quality and aquatic communities have rebounded although sediments still contain high levels of contaminants (metals). The dams continue to hinder recovery of the mussel community by obstructing movement of fish species that serve as hosts for their parasitic larvae. Fishery data can be found in table 2.4.

South Fork Flambeau River
The aquatic habitat has been severely altered by log driving practices. Although the water quality was never degraded from industrial discharges, the influx of its clean water tended to dilute historical pollutants from the North Fork to moderate the impact on riverine ecosystems downstream of their confluence. Fishery data can be found in Table 2.4.

Price Creek
From the mid 1980's through the early 1990's WDNR Fisheries staff installed numerous brush bundles and other structures in Price Creek to improve trout habitat, trout population density, and size structure. The project was funded from Trout Stamp revenues. The current condition of the structures is unknown, and no maintenance has been done since the mid 1990s.

TABLE 2.2 STREAM ORDER, SPECIAL DESIGNATIONS, AND FISHERY MANAGEMENT CLASSIFICATIONS FOR THE FLAMBEAU RIVER STATE FOREST

		UPPER NORTH FORK FLAMBEAU RIVER NATURAL AREA (MILES)	MAIN UNIT (ACRES)	MAIN UNIT (MILES)	TOTAL (MILES)
STRAHLER STREAM ORDER	1st	0.1		65.8	65.9
	2nd	0.5		28.9	29.4
	3rd	0.2		17.2	17.4
	4th	0.0		21.0	21.0
	Total	13.4		176.2	189.6
TROUT WATERS	Class 1	0.0		29.6	29.6
	Class 2	0.2		24.5	24.7
	Class 3	0.0		10.5	10.5
	Total	0.2		64.6	64.8
CHAPTER NR102	Outstanding Resource Water	12.6	200	11.7	24.3
	Exceptional Resource Water	0.0		72.7	72.7
FISHERY MANAGEMENT WATERS	Smallmouth Bass Waters	12.6		59.0	71.6
	Muskellunge Waters	0.0	1084	53.7	53.7
	Sturgeon Waters	0.0		53.7	53.7
	Walleye Waters	0.0	1129	0.0	0.0
Natural Heritage Inventory Waters		12.8	1483	76.9	89.7

VEGETATION AND NATURAL COMMUNITIES

HISTORIC VEGETATION

Information on historic vegetation comes primarily from the General Land Office's Public Land Survey (PLS), conducted in Wisconsin between 1832 and 1866 (Schulte and Mladenoff 2001) and also from Finley (1976). The uplands comprising the FRSF were historically vegetated with mature Northern Mesic Forest, dominated by hemlock and yellow birch, with white pine, sugar maple, and basswood as major associates. Balsam fir and hemlock "brush" are frequently mentioned as understory species. It is possible the surveyors were referring to Canada yew or "ground hemlock," a common understory shrub in the pre-settlement forest (Swift 1967). Hemlock and yellow birch were historically co-dominant in much of what's now the FRSF and surrounding area.

TABLE 2.3 TROUT CLASSIFICATION FOR STREAMS AND STREAM SEGMENTS WITHIN THE FLAMBEAU RIVER STATE FOREST

	STREAM NAME	TROUT CLASS	LENGTH (MILES)
Upper North Fork Natural Area	Deer Creek	2	0.20
Main Unit	Bear Creek	1	1,83
	Butternut Creek	2	6.33
	Connor Creek	1	2.11
	Connor Creek	3	0.72
	Deer Creek	1	2.55
	Deer Creek	2	0.72
	Hackett Creek	1	3.95
	Hackett Creek	2	2.37
	Little Connors Creek	3	2.71
	Log Creek	2	8.13
	Mason Creek	3	1.38
	Ninemile Creek	2	0.97
	Pine Creek	3	1.52
	Price Creek	1	4.05
	Price Creek	2	2.08
	Rock Creek	2	2.26
	Unnamed Creek	1	15.10
	Unnamed Creek	2	1.66
	Unnamed Creek	3	4.22
Total			64.86

No early successional aspen-birch stands large enough to be mapped at the township scale were delineated by Finley, and aspen was the least reported tree species from the Public Land Survey data. Windthrow is the major natural disturbance over much of this landscape. Historically dominant lowland species were mostly swamp conifers, including tamarack, black spruce, and white cedar. Hemlock, yellow birch, black ash, white pine, and balsam fir were also noted in the wetlands in some areas. Many of today's ash swamps were likely to have been dominated by conifer species (hemlock) historically.

Changes in forest cover types have been affected by both natural disturbance events and forest management. The major cover types have not changed significantly in the past 40 years-northern hardwoods and aspen remain the dominant cover types and comprise almost half of the Forest's acreage. Other cover types, such as hemlock, have changed dramatically. Almost half of the hemlock acreage was lost to the 1977 windstorm. Additionally, red maple was not a significant cover type in 1970 but now comprises 3 percent of the land cover.

TABLE 2.4 FISHERY MANAGEMENT CLASSIFICATIONS FOR WATERS WITHIN THE FLAMBEAU RIVER STATE FOREST

FISHERY MANAGEMENT WATERS	WATERBODY NAME	SURFACE AREA (ACRES)	STREAM LENGTH (MILES)
Muskellunge	Big Falls Flowage	45.1	
	Connors Lake	410.0	
	Evergreen Lake	204.2	
	Flambeau River		44.2
	Flambeau River, South Fork		9.6
	Mason Lake	197.2	
Smallmouth Bass	Butternut Creek		2.1
	Flambeau River		44.2
	Flambeau River, South Fork		9.6
	Log Creek		0.0
	Pine Creek		1.5
Sturgeon	Flambeau River		44.2
	Flambeau River, South Fork		9.6
Walleye	Big Falls Flowage	45.1	
	Connors Lake	410.0	
	Evergreen Lake	204.2	
	Lake of the Pines	272.7	
	Mason Lake	197.2	
Total		1985.7	165.0

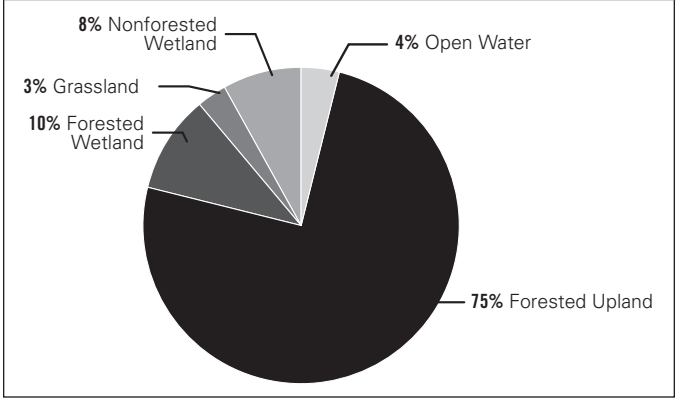
Table 2.5 compares major cover types in 1970 to current conditions. There was no significant change in non-forested cover types.

Forest management also influences forest cover types. The 1980 Master Plan identified a preliminary annual harvest goal of 675 acres to meet plan objectives. This goal was established without updated forest reconnaissance (recon) data from the 1977 windstorm. Harvest goals were to be examined and modified as forest recon data were updated. Current recon data identifies approximately 8,000 acres of forest management practices in backlog for the FRSF. The current planning schedule estimates that approximately 2,300 acres/year be established for timber sale for the next 15 to eliminate the backlog. In 2007, the Flambeau established 2,200 acres for timber sale, close to annual acreage need to reduce the backlog. On average, the Forest harvests 790 acres per year with an average of 10,000 cord equivalents (Table 2.WWW).

CURRENT VEGETATION AND FOREST RESOURCES

The area comprising the FRSF is still largely forested (Figure 2.1). Deciduous forests, covering roughly half of the land area of the three counties comprising the main unit of the forest, are the most common land cover type, followed by Lowland Shrub, Forested Wetland, Agriculture, Grassland, Coniferous Forest, Mixed Deciduous/Coniferous Forest, Open Water, and Emergent/Wet Meadow types based on WISCLAND (1993) data. Forested cover types account for approximately 70% of the FRSF based on WDNR Forest Reconnaissance data. Northern Hardwoods is the most common cover type, comprising 44% of the forested acreage on the forest, followed by Aspen, Swamp Hardwoods, and Lowland Brush, and Fir-Spruce (Table 2.5). Map 2.2 represents cover types on the Forest.Although northern hardwood forest remains the most common forest cover type on the FRSF, the composition, structure, and patch sizes differ significantly from pre-settlement conditions. Hemlock and yellow birch reproduction is scarce or patchy here, as in many other parts of the state, and both of these species have declined in frequency in the forests of the FRSF and surrounding areas relative to presettlement conditions. Forest management on the FRSF has focused on improving the yield and timber quality of northern hardwood sawlogs through uneven-aged management.

FIGURE 2.1 PERCENTAGE OF COVER TYPES ON THE FLAMBEAU RIVER STATE FOREST



Source: Wiscland

The FRSF contains abundant wetlands, including hardwood swamps, conifer swamps, open peatlands, wet meadows, alder thickets, and small amounts of emergent marsh. Some of the FRSF lowland forested acreage, especially the swamp hardwoods cover type, is currently being actively managed for timber production. Several of the peatlands are large and undisturbed, with mostly undisturbed hydrology. White cedar swamps are currently uncommon on the FRSF, and white cedar regeneration appears to be lacking, as it is in many parts of the state, likely due to excessive browse of deer, hare and rodents. Ephemeral ponds are common and found dispersed throughout many of the forested areas of the FRSF.

Several historical factors influenced the structure and composition of the FRSF and surrounding landscape, including unregulated logging during the state's "cutover" period, along with subsequent land clearing and uncontrolled wildfires, as well as the more recent 1977 windstorm event (a "downburst") that greatly affected approximately 1/3 of the total FRSF land area. Currently, this forested landscape is heavily dominated by sapling to pole-sized trees. Old growth successional stages of all forest types are rare and larger blocks of older forest with mature forest structure are uncommon. Many of the dominant species associated with the pre-settlement forest types are currently experiencing region-wide regeneration failure, likely due to a combination of factors, including heavy deer browse. Deer browse pressure on the FRSF and surrounding areas is high, and evidence of heavy deer browse can be seen in many locations throughout the forest. Table 2.5 provides current acres of forest cover types on the forest.

The Forest continues to provide high quality northern hardwoods to the local and regional economy through uneven aged stand management. Some of the challenges faced by forest managers include: windthrow events, high deer populations, the reduction of fire as a management technique, and climate change. Each of these factors constrain forest management in some way; some in more obvious ways (deer browse) than others (climate change). Forest managers must be responsive and adaptive to changing conditions in resource management as opportunities and constraints become known.

CURRENT MANAGEMENT DESIGNATIONS

Two of the three state-designated Wilderness Areas occur on the FRSF. "Wilderness" and "Wild Area" designations

are from a land classification system that has since been replaced by a different set of land management classifications (Wisconsin Administrative Code NR 44).

River Wilderness Area
Designed to preserve, restore, and maintain the pristine character of the Flambeau River for future generations (Wisconsin Department of Conservation 1955). The wilderness area applies to all state owned lands within ¼-mile of the high water mark of the North and South Fork of the Flambeau River (See Map 2.1 Property Ownerhsip and Management). Timber harvest within this zone is limited to existing pine plantations. Some pre-existing roads, trails, and recreational developments occur within the zone and remain open for public use. Many private developments along the river corridor have been removed and allowed to revert to a more natural condition since the state acquired the property, although there are several privately owned in- holdings located with this area.

Big Block Wilderness Area
This area is comprised of 1,354 out of a total if 1,600 total acres. This tract was formerly occupied by a landmark stand of old growth hemlock-hardwood forest representing the largest remaining state-owned old-growth remnant. In 1952, 370 acres of the Big Block, mostly in the River Wilderness Zone, were designated as the Flambeau River Hardwood Forest State Natural Area (SNA). The remainder of this old growth stand was actively managed for timber production, including a Northern Hardwood management "demonstration area" east of CTH M. On July 4, 1977 most of Big Block was blown down by a major windstorm event.

Following this event, extensive timber salvage operations occurred here and elsewhere on the FRSF, including approximately 100 acres of the SNA. Only small residual pockets of old growth remain today. Most of the Big Block is currently dominated by a mix of hardwood saplings and poles, small patches of grassy openings, and upland brush.

Wild Areas
Wild areas share many characteristics of wilderness areas, including the predominance of natural forces or restoration possibilities. They will however, be subject to some management practices not permitted in wilderness areas, such as timber harvesting to retain the wild quality if the area. Public vehicles are not permitted. The purpose of these areas is to meet the public need to experience solitude and primitive recreation.

- Butternut Creek (3,100 acres)
- Bear Creek (2,072 acres)

Wilderness Lake Zones and Wild Lake Zones
These designations exclude motorized access, motorized watercraft, and recreational development, as well as limit timber harvest within 400 feet of shoreline areas. Wilderness Lakes exclude camping and have no road access (see Map 2.1). See the current master plan (WDNR 1980) for more information. Swamp and Bass Lakes are classified as wilderness lakes.

- Swamp Lake (744 acres)
- Bass Lake (708 acres)
- Hanson Lake (148 acres)
- Champagne Lake (28 acres)
- Mason and Evergreen Lakes (622 state-owned acres)

State Natural Areas
There are two State Natural Areas (SNAs) on the forest (also known as scientific areas), both if which were significantly

TABLE 2.5 ACRES OF COVER TYPE

COVER TYPE	ACRES 1970	ACRES CURRENT	PERCENT OF TOTAL ACRES
Aspen	13,668	16,536	18
White Birch	517	468	1
White Cedar		654	1
Balsam Fir		110	0
Fir Spruce	3,974	2,444	3
Hemlock	4,688	2,544	3
Red Maple		2,424	3
Northern Hardwoods	34,089	35,042	39
Red Pine	1,128	835	1
White Pine	1,299	1,319	1
Black Spruce	2,419	4,090	5
Swamp Conifer	1,366	1,871	2
Swamp Hardwoods	5,448	7,673	8
White Spruce		273	0
Tamarack	684	2,819	3
Total	**69,280**	**79,267**	**88**
NON FOREST TYPE	**ACRES 1970**	**ACRES CURRENT**	**PERCENT OF TOTAL ACRES**
Water		452	1
Lowland Brush - Alder		5,894	7
Minor Stream		1,632	2
Right of Way		351	0
Upland Brush		1,389	2
Total		**9,367**	**12**

Source: WDNR Forest RECON database, August, 2008. Classifications <100 acres not displayed

impacted by the 1977 windstorm. They now serve as benchmarks for studying natural regeneration of old growth forest ecosystems following natural disturbance events – with and without salvage logging. Although the Natural Resources Board approved some salvage operations in both of these areas following the windstorm, roughly two-thirds of the SNA acreage were not harvested. The combined acreage of these areas is 526 acres, less than one percent of the property.

- Lake of the Pines Conifer-Hardwoods (156 acres)
- Flambeau River Hemlock-Hardwoods (370 acres). These SNAs were established to protect examples of relatively undisturbed old growth hemlock-hardwood forest.

FOREST HABITAT TYPE

The Forest Habitat Type Classification System (FHTCS) is one tool in conducting site assessments in forested stands. Based on the FHTCS the most common habitat type on the FRSF is AOCa/AH (Acer, Onocela, Caulophyllym/Acer, Hydrophyllum) and ACaI/AHI (Acer, Caulophyllum, Impatiens/Acer, Hydrophyllum, Impatiens) on mesic, wet-mesic medium to rich sites. Much of the primary soil is either moderately well to poorly drained silt loam which has a habitat type of AHI. The more well drained sites of silt (to sandy) loam can have ATM (Acer, Tsuga, Maianthemum) habitat type. The water table is often "perched" which may result in more hydromesic habitat types. Wetland soils are quite common and include poorly drained muck and organic peats that would also have hydromesic habitat types (Map 2.2 Property Landcover). Habitat types help assess true site capability and help resource managers evaluate management alternatives (Kotar et al 2002).

TABLE 2.6 COMMUNITY TYPES ON THE FRSF

COMMUNITY TYPE
Black Spruce Swamp
Emergent Marsh
Floodplain Forest
Forested Seep
Lake--Deep, Very Soft, Seepage
Lake--Shallow, Soft, Seepage
Lake--Soft Bog
Muskeg
Northern Dry-mesic Forest
Northern Mesic Forest
Northern Sedge Meadow
Northern Wet Forest
Northern Wet-mesic Forest
Open Bog
Poor Fen
Tamarack

Source: FRSF Biotic Inventory 2008.

NATURAL COMMUNITIES

The FRSF supports a diversity of natural communities which differ in size and quality. High quality natural communities listed in the Natural Heritage Inventory (NHI) database found in and around the FRSF and are listed in Table 2.6. While other community types are present, they were largely represented by stands that were too small, too highly disturbed, or too altered to warrant inclusion in the NHI database. General descriptions of the natural communities found within the FRSF can be found in the FRSF Biotic Inventory (WDNR 2008).

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

PLANTS

The Wisconsin Natural Heritage Database tracks seven rare plant species on the Forest (Table 2.7). Mountain cranberry (Vaccinium vitis-idaea ssp. minus) is listed as State Endangered; the other five species are Special Concern. Heritage staff documented three of these rare species during recent field inventory, while the others have not been seen for decades.

TABLE 2.7 NHI WORKING LIST PLANTS DOCUMENTED WITHIN THE FLAMBEAU RIVER STATE FOREST

COMMON NAME	SCIENTIFIC NAME	YEAR LAST OBSERVED
Swamp-pink	Arethusa bulbosa	2006
Mingan's Moonwort *	Botrychium minganense	1979
Blunt-lobe Grape-fern *	Botrychium oneidense	1979
Assiniboine Sedge	Carex assiniboinensis	2000
Sparse-flowered Sedge	Carex tenuiflora	2000
Swamp Bedstraw	Galium brevipes	1963
Mountain Cranberry	Vaccinium vitis-idaea ssp. minus	2006

Source: FRSF Biotic Inventory 2008
**These species were found just outside of the FRSF boundary.*

Swamp-pink
Swamp-pink (*Arethusa bulbosa*) prefers neutral bog and fen mats with a mix of sedges, Ericads, and Sphagnum.

Mingan's moonwort
Mingan's moonwort (*Botrychium minganense*) is most often found in cool, mixed conifer-hardwood forests near Lake Superior.

Blunt-lobe grape-fern
Blunt-lobe grape-fern (*Botrychium oneidense*) prefers moist, often acid depressions in damp open forests.

Assiniboine sedge
Assiniboine sedge (*Carex assiniboinensis*) prefers rich alluvial terraces along rivers.

Sparse-flowered Sedge
Sparse-flowered sedge (*Carex tenuiflora*) is found in open- to closed-canopy cold, wet, coniferous forests, usually on neutral to calcareous substrates.

Swamp bedstraw
Swamp bedstraw (*Galium brevipes*) is found in calcareous swamps and wet shores.

Mountain cranberry
Mountain cranberry (*Vaccinium vitis-idaea ssp. minus*) is the only Endangered plant to be documented on the FRSF. In this portion of the state, it has been found in open conifer swamps, although there are few documented occurrences.

TABLE 2.8 NHI WORKING LIST ANIMALS DOCUMENTED WITHIN THE FLAMBEAU RIVER STATE FOREST

COMMON NAME	SCIENTIFIC NAME	YEAR LAST OBSERVED	STATE STATUS
BIRDS			
Northern Goshawk	Accipiter gentilis	2006	SC/M
Red-shouldered Hawk	Buteo lineatus	1980	THR
Swainson's Thrush	Catharus ustulatus	2000	SC/M
Black-throated Blue Warbler	Dendroica caerulescens	2000	SC/M
Cerulean Warbler	Dendroica cerulea	2001	THR
Cape May Warbler	Dendroica tigrina	2000	SC/M
Bald Eagle	Haliaeetus leucocephalus	2007	SC/P
Connecticut Warbler	Oporornis agilis	2000	SC/M
Osprey	Pandion haliaetus	1992	THR
Louisiana Waterthrush	Seiurus motacilla	2002	SC/M
DRAGONFLIES			
Extra-striped Snaketail	Ophiogomphus anomalus	1995	END
Pygmy Snaketail	Ophiogomphus howei	2002	THR
REPTILES AND AMPHIBIANS			
Wood Turtle	Clemmys insculpta	2005	THR
Northern Ringneck Snake	Diadophis punctatus edwardsii	2000	SC/H
MUSSELS			
Elktoe	Alasmidonta marginata	1990	SC/H
Purple Wartyback	Cyclonaias tuberculata	1992	END
Round Pigtoe	Pleurobema sintoxia	1990	SC/H
Salamander Mussel	Simpsonaias ambigua	1990	THR

Source: FRSF Biotic Inventory 2008

ANIMALS

The NHI Working List of animals documented within the forest includes: 10 birds, 2 dragonflies, 2 herpetiles, and 4 mussels. Table 2.8 provides a complete list of animals from the NHI database.

BIRDS

Northern Goshawk

The Northern Goshawk is a large forest-dwelling hawk generally associated with mature deciduous, coniferous, or mixed forests in the northern half of the state.

Red-shouldered Hawk

The Red-shouldered Hawk prefers larger stands of medium-aged to mature lowland deciduous forests, and dry-mesic to mesic forest with small wetland pockets.

Black-throated Blue Warbler

Black-throated Blue Warbler is found in dense hardwood or coniferous undergrowth within extensive stands of mesic deciduous or mixed forests of mature sugar maple, basswood, yellow birch and hemlock.

Cerulean Warbler

Cerulean Warblers occur most frequently in large stands of unfragmented, mature hardwood forest, in both upland and lowland habitats. Although at some locations its presence has been strongly associated with large canopy oaks, they are not dependent on the presence of oaks.

Cape May Warbler

Cape May Warbler breeds in northern Wisconsin, primarily in stands of mature boreal conifers such as spruce and fir. Both upland and lowland conifer forests may be used, and they occasionally occupy mature spruce plantations.

Bald Eagle

Bald Eagles prefer large lakes and rivers with nearby tall pine trees for nesting. Favored wintering and roosting habitat includes wooded valleys near open water and major rivers from December through March.

Connecticut Warbler

The Connecticut Warbler prefers mature, multi-layered pine stands, particularly jack pine, and occasionally tamarack-pine stands with a dense hardwood understory. They also breed in boggy stands of swamp conifers composed of black spruce and tamarack.

Osprey

Osprey, a fish-eating raptor, prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland, and shrub communities.

Louisiana Waterthrush

Louisiana Waterthrush breeds along rocky, high-gradient streams within relatively large, intact deciduous or mixed forests, primarily in the southern 2/3 of the state. It is sometimes found in Floodplain Forest near streams.

Swainson's Thrush

Swainson's Thrush breeds in northern Wisconsin, primarily in coniferous or mixed deciduous-coniferous forests, nesting in understory shrubs or saplings.

DRAGONFLIES

Extra-striped Snaketail

Extra-striped snaketail (Ophiogomphus anomalus), a dragonfly, has been found locally in medium to large fast, clean, cool to warm streams.

Pygmy Snaketail

Pygmy snaketails, (Ophiogomphus howei), have been found in small to large, clean, fast-flowing warm streams with gravel-sand substrates. Adults apparently forage and perch on the stream-side forest canopy.

REPTILES

Wood Turtle

Wood Turtle (Clemmys insculpta), a turtle listed as Threatened in Wisconsin, prefers deciduous forests, shrub swamps, and open meadows along moderate- to fast-moving streams and rivers. Egg-laying occurs in open, often sandy areas, during the month of June. Eggs hatch in late Summer.

Northern Ringneck Snake

Unlike most snakes, the northern ringneck (Diadophis punctatus edwardsii) occurs in moist deciduous forests and is fossorial (lives underground). Its diet consists of earthworms, beetles, salamanders, frogs, and other small snakes.

MUSSELS

Salamander Mussel

Salamander mussel (Simpsonaias ambigua) is a State Threatened species that occurs in both the Mississippi River drainage and the Lake Michigan drainage. In Wisconsin, this species prefers mud, silt or sand substrates directly beneath medium to large-sized rocks and undercut ledges, where its host, the mudpuppy frequents and is considered a microhabitat specialist.

Elktoe

Elktoe (Alasmidonta marginata), a State Special Concern mussel, is found in various-sized streams with flowing water, sand, gravel or rock substrates that are stable. The known host fishes include five widespread species including redhorse and sucker species and rockbass.

Purple Wartyback
Purple wartyback (Cyclonaias tuberculata), a mussel listed as Endangered in Wisconsin, is now restricted to large streams in the northwestern part of the state. It prefers a stable substrate containing rock, gravel and sand in swift current. Known hosts include bullhead and catfish species.

Round Pigtoe
Round pigtoe (Pleurobema sintoxia) is a State Special Concern mussel. In Wisconsin, this species occurs only in clean water of small streams to large rivers on stable substrate. The known host fish include a number of cyprinid species.

MAMMAL
American Marten
American martens live in mature, dense conifer forests or mixed conifer hardwood forests, preferring woods with a mixture of conifers and deciduous trees including hemlock, white pine, yellow birch, maple, fir and spruce. The presence of large limbs, snags, and coarse woody debris provide important prey, protection and den sites. Although they have not been documented on the FRSF to date, they are known to occur immediately to the north of the property on the Chequamegon-Nicolet National Forest.

SPECIES OF GREATEST CONSERVATION NEED

Numerous Species of Greatest Conservation (SGCN) from the Wisconsin Wildlife Action Plan (WDNR 2006) are known from the North Central Forest, including 10 mammal, 53 bird, 7 herptile, and 10 fish species. Several of these species have been recorded on the FRSF, and several others have the potential to occur there (Table 2.9). Species in bold are known to occur on the Flambeau River State Forest, and several others are potentially present. See the Wisconsin Wildlife Action Plan (WDNR 2006d) for more information on Species of Greatest Conservation Need and their habitats.

OPPORTUNITIES FOR BIODIVERSITY CONSERVATION

The best examples of rare and representative native ecosystems, aquatic features, and sensitive species populations have been identified by WDNR as opportunities for biodiversity conservation (WDNR Biotic Inventory 2008). These include the largest and potentially most viable populations of plants and animals from the NHI Working List known to occur on the forest. Priority natural community examples are: 1) the least modified from a natural condition, 2) occur in a context which is compatible with maintaining that community over time, and 3) represented by relatively large stands. Although few rare natural community types are known to occur on the forest, both rare and representative community types are needed to manage for biological diversity (e.g., Northern Mesic Forest as a type is abundant throughout northern Wisconsin, but old growth stands, stands dominated by conifers, and stands constituting large patches are now rare and may continue to decline).

Landscape Level Priorities

The FRSF presents opportunities to maintain large blocks of contiguous forest, with embedded, undeveloped lakes, streams, and wetlands, that are representative of the natural community types known from this region.

Old-growth Forests
The WDNR has identified a need to conserve, protect, and manage old-growth forests (WDNR 2004, WDNR 1995). Old-growth forests can support high densities of certain forest herbs, as well as certain assemblages of birds and other animals, fungi, and bacteria species that are scarce or absent elsewhere. Old-growth forest management is one important facet of providing the diverse range of habitats needed for sustainable forest management (WDNR 2006b).

Older forests, for example those with trees older than 120 years, are rare in the state, especially upland forests with structural attributes such as trees with a range of diameter sizes including very large sizes, large-diameter coarse woody debris, abundant large dead snags and den trees, and pit-and-mound micro- topography. Although the FRSF is the second-largest state-owned property in Wisconsin and is located in one of the most heavily forested portions of the state, much of the forested lands of the FRSF and surrounding land are represented by young and medium-aged stands; these stands are often dominated by early successional species such as aspen within a mosaic of relatively small patches providing ample habitat for species associated with such vegetation (this is almost the reverse of the historical condition). In contrast, older, less disturbed mesic forests, especially in larger patches used by certain bird assemblages and other animal species, are not well represented in this landscape. The FRSF offers excellent opportunities to manage specific areas for older forest within a context of outstanding aquatic features, intact and relatively undisturbed wetlands, and vast public landholdings. With its large, mostly contiguous forested acreage, the FRSF could provide for a range of forest successional stages and patch sizes, as well as the ability to practice a wide spectrum of management strategies ranging from more intensive harvest activities designed to enhance timber production to establishing new benchmark areas for studying natural processes.

There could be opportunities to practice non-traditional techniques such as "Managed Old-growth" including experimental manipulations to accelerate old-growth characteristics (two WDNR-supported studies are currently in progress on the FRSF for achieving this goal). Table 2.10 contains acreages for major cover types on the FRSF with ages 100 and higher, along with the percent of the total acreage for that cover type

TABLE 2.9 SPECIES OF GREATEST CONSERVATION NEED OCCURRING IN THE NORTH CENTRAL FOREST ECOLOGICAL LANDSCAPE

	SPECIES WITH A HIGH DEGREE OF PROBABILITY OF OCCURRING IN THIS ECOLOGICAL LANDSCAPE	SPECIES WITH A MODERATE DEGREE OF PROBABILITY OF OCCURRING IN THIS ECOLOGICAL LANDSCAPE
Mammals	**Gray Wolf**	Moose
	Northern Flying Squirrel	Eastern Red Bat
	Water Shrew	Northern Long-eared Bat
	Woodland Jumping Mouse	
	Silver-haired Bat	
	Hoary Bat	
	American Marten	
Birds	**American Bittern**	Canvasback
	Trumpeter Swan	Sharp-tailed Grouse
	Lesser Scaup	Solitary Sandpiper
	Osprey*	Black Ternr
	Bald Eagle	**Brown Thrasher**
	Northern Harrier	**Cerulean Warbler***
	Northern Goshawk*	**Connecticut Warbler***
	Red-shouldered Hawk*	**Bobolink**
	Spruce Grouse	Rusty Blackbird
	American Woodcock	
	Black-billed Cuckoo	
	Whip-poor-will	
	Black-backed Woodpecker	
	Olive-sided Flycatcher	
	Least Flycatcher	
	Boreal Chickadee	
	Veery	
	Wood Thrush	
	Golden-winged Warbler	
	Black-throated Blue Warbler*	
	Canada Warbler	
	Red Crossbill	
Herptiles	**Wood Turtle***	Mudpuppy
	Boreal Chorus Frog	Pickerel Frog
	Four-toed Salamander	
	Mink Frog	
Fishes	Lake Sturgeon	Greater Redhorse
	Gilt Darter	
	Longear Sunfish	

Source: WDNR Wildlife Action Plan 2006
** Special Concern Species and Threatened Species*
Bold Type indicates species found on Flambeau River State Forest
*** In additin to these species , Louisiana Waterthrush, another bird SGCN found here at the extreme northern edge of its breeding range, was documented along high gradient streams in the FRSF.*

on the forest. For northern hardwoods, the WDNR Old-growth Handbook (WDNR 2006) contains more detailed criteria for old-growth. Although these criteria are difficult to apply directly to forest reconnaissance data, there are over 4,000 acres of northern hardwoods in the 15" and higher diameter class with density in classes 2 and higher, suggesting there are stands with opportunities for old-growth management. As age is only one consideration regarding old-growth management, a more detailed analysis would be helpful. The Biotic Inventory (WDNR 2008) highlights several sites that may offer opportunities for developing old-growth.

Connectivity

The FRSF presents opportunities to maintain or re-establish ecological connectivity between ecologically significant areas identified within the landscape (WDNR Biotic Inventory 2008). During the planning process, consideration should be given to forest patterns and processes, as well as the context of ecologically important areas and how stands function within the regional landscape. For example, the FRSF contains a rich mosaic of wetlands, streams, and lakes in a mostly remote, forested context, so forest and wetland /riparian connections will need to be recognized during planning efforts. Forest fragmentation should also be avoided wherever possible to preserve the ecological integrity of the forest.

Community Level Priorities

Northern Mesic Forest

Species composition of mesic forests in Wisconsin has changed dramatically. In most cases, as with the FRSF, mixed coniferous-deciduous types have lost much of their coniferous component (Schulte et al. 2007, WDNR 1995). Reproduction of hemlock and white pine in mesic forests, as well as northern white cedar in wet-mesic forests, is lacking in most areas of the Forest. In addition, yellow birch has decreased. There may be opportunities to restore these communities where a seed source still exists. Additional deer control may be needed to successfully regenerate some species, such as hemlock. Older mesic forests are uncommon, and there are good opportunities on the FRSF to develop Northern Mesic Forests with old-growth characteristics.

Northern Dry-mesic Forest

A rare type on the Forest, high-quality examples of Northern Dry-mesic Forests are limited to a few locations on the FRSF. These stands contain mature trees, conifer dominance, and areas of high crown closure. These sites offer opportunities to develop older forests of an uncommon type with ecological connections to the surrounding forest and the Flambeau River. They may also provide a seed source for the potential re-establishment of the now missing pine component in some of the adjoining mesic forests.

Northern Wet-mesic Forest

The FRSF and surrounding areas contain good examples of the Northern Wet-mesic Forest community; forested wetlands dominated by northern white cedar. This natural community type is known to harbor rare plant species and should be given special consideration during planning and management activities. Most of the stands documented on the FRSF have been heavily impacted by deer browse and have little cedar reproduction, but otherwise retain good structure and representative species composition.

Forested Seep

Several spring seeps were examined in the FRSF, mostly in the southernmost portion of the forest, and in places near the Flambeau River and Butternut Creek. These areas sometimes occur near the bases of steep slopes or bluffs. Seepage areas, with active discharges of groundwater, sometimes host uncommon or rare plant and animal species. They also contribute to high water quality of the streams they feed. These features are highly susceptible to damage, and land use practices that lead to soil or hydrological disturbance should be avoided. Recharge areas need to be identified and managed carefully if the springs and seeps are to remain functional.

Ephemeral Ponds

Also known as vernal pools, Ephemeral Ponds are important refugia and breeding sites for a wide range of amphibian and aquatic invertebrate species within forested landscapes. These ponds can exhibit high macroinvertebrate richness and harbor invertebrates known only from these specialized habitats. Whenever possible, Ephemeral Ponds should remain embedded within forested habitats. To protect these habitats, the ponds should not be isolated by clear cutting around them, their canopy coverage should be maintained, and efforts should be made to minimize or prevent negative impacts to hydrology

TABLE 2.10 MAJOR COVER TYPES ON THE FRSF > 100 YRS

AGE	AGE 100+ (ACRES)	% TOTAL ACRES
Black Spruce	1030	25%
Cedar	468	75%
Hemlock	1431	65%
Northern Hardwoods	424	13%
Swamp conifer	71	4%
Swamp Hardwoods	1554	20%
Tamarack	937	33%
White Pine	769	58%

Source: WISFIRS 2008

by limiting road, ditch, or dike construction. The timing of management activities around ephemeral ponds can be critical. Ephemeral Ponds can be difficult to identify in the winter when tree marking often occurs, so additional provisions may need to be made to protect these areas during harvest. Finally, places with known concentrations of Ephemeral Ponds may warrant special consideration during the master planning process to provide landscape-level protection to this resource within the larger forested context.

Forested and Non-forested Wetlands

Wetlands are abundant throughout the study area and include several forested and non-forested types. Many of them are in good condition, and they support a disproportionately high percentage of the rare species observed on the Forest. The FRSF offers several opportunities to protect wetlands within a mosaic of forest and aquatic communities. Some of the best quality wetlands could be considered for special management and protection designation, particularly where sensitive (including rare) species have been documented.

Lakes

The undeveloped lakes within the FRSF warrant continued protection. The forest contains good examples of several lake types. Undeveloped examples of these lakes are becoming increasingly rare throughout the region, and they are important for several plant and animal species. Hansen Lake and its associated lakes and ponds have fluctuating shorelines that could harbor rare plants. Planners could use a landscape approach and consider buffering undeveloped lakes on the Forest further by embedding them within special management areas of intact native communities, rather than applying a set distance buffer. Care will be needed to avoid introduction of aquatic invasive species to these waterbodies.

Flambeau River

The free-flowing stretches of the river provide important habitat for many rare animal species, and management of lands adjacent to the river will have important effects on water quality. Many of the areas along the river slopes contain mature forests, as well as forested seeps that can harbor rare plant assemblages. A river "buffer" that accounts for steepness of slope, soil type, vegetative cover, and the habitat needs of sensitive species that are, or could be, present would be most effective for protecting species associated with the river.

THREATS TO NATURAL COMMUNITIES, AQUATIC SYSTEMS, AND RARE SPECIES

The FRSF and surrounding areas are part of an extensive and contiguous forested landscape with low human population, low road density and large acres of public land. This area and the state forest offer the potential to continue management while considering ecological opportunities to restore and enhance biodiversity at the landscape level. Some potential and existing threats include ecological simplification, fragmentation and invasive species.

ECOLOGICAL SIMPLIFICATION

Ecological simplification refers to a loss of species and structural diversity and an increased dominance of fewer species. The increase in sugar maple dominance that is occurring in northern hardwood forests is an example of simplification as is the lack of features like large woody debris and tip-up mounds. Sugar maple is outcompeting conifers and other species that were common in the historic forests on the FRSF. Regeneration of hemlock and yellow birch are problematic in many cases. Strict application of the single-tree selection method is probably a factor that increases sugar maple's dominance (Crow et al. 2002). White tailed deer herbivory can give sugar maple a competitive advance and contributes to the loss of some native plants, some conifer species and even hardwood species. One example of a heavily impacted species is Canada yew, a formerly widespread evergreen shrub that provided structural diversity on the FRSF. These changes occur at the stand level, but have cumulative effects at broader spatial scales.

Fragmentation

Fragmentation is a term used to describe certain kinds of landscape structure. "Permanent fragmentation" refers to long-term conversion of forest to urban, residential or agricultural uses. "Habitat fragmentation" is defined as a disruption of habitat continuity caused by human or natural disturbance creating a mosaic of successional stages within a forest tract. As Wisconsin's second-largest state property located within a largely unfragmented landscape, the FRSF provides unique opportunities for management. As many privately owned forested areas in the state become parcelized and developed, the FRSF represents an important opportunity to maintain an intact forested landscape, serving critical functions on a statewide level. To maintain the ecological integrity of this important area, it will be critical for planning and management efforts to consider possible fragmentation effects when planning developments, building roads, and acquiring new parcels or inholdings. Additionally, many species of wildlife, including forest interior birds (e.g. Martins and Goshawk) and wide ranging mammals depend on larger blocks of land.

INVASIVE SPECIES

Terrestrial invasive plant species occur on the FRSF but are not yet at high levels. Care needs to be taken to prevent the spread and introduction of invasive species. In forested community types, glossy and common buckthorn (Rhamnus frangula and R. cathartica), nonnative honeysuckles (Lonicera spp.), garlic mustard (Alliaria petiolata), and Dame's rocket (Hesperis matronalis), already pose problems. These species may initially

colonize disturbed areas and edges, but once established, can continue to invade surrounding habitats, including forests. Along roads and in open or partially forested areas, spotted knapweed (Centaurea biebersteinii), wild parsnip (Pastinaca sativa), leafy spurge (Euphorbia esula), Canada thistle (Cirsium arvense), and common tansy (Tanacetum vulgare) are present. A native carex, Penn sedge (Carex pennsylvanica), behaves like an invasive in the region. It frequently forms monotypic mats after disturbance (i.e. timber harvests) crowding out native understory plants and tree seedlings. Human travel and recreation pursuits are major vectors for the spread of invasives.

In aquatic and wetland ecosystems, Eurasian water milfoil, curly pondweed (Potamogeton crispus), rusty crayfish (Orconectes rusticus), giant/common reed (Phragmites australis), purple loosestrife, and reed canary grass are the primary problem species. Watercress (Nasturtium officinale) is also present.

The invasion of forests by European earthworms of the family Lumbricidae is a concern in this Landscape. While native earthworms were absent from the Landscape after the last glaciation, exotic earthworms have been introduced since Euro-American settlement, primarily as discarded fishing bait (Hendrix and Bohlen 2002, Hale et al. 2005). Exotic earthworms can have dramatic impacts on forest floor properties by greatly reducing organic matter (Hale et al. 2005), microbial biomass (Groffman et al. 2004), nutrient availability (Bohlen et al. 2004, Suarez et al. 2004), and fine-root biomass (Fisk et al. 2004). These physical changes in the forest floor reduce densities of tree seedlings and rare herbs (Gundale 2002) and can favor invasive plants (Kourtev et al. 1999). In a study of 51 Northern Wisconsin forest stands, most in the surrounding area, Wiegmann (2006) found that shifts in understory plant community composition due to exotic earthworms were more severe in stands with high white-tailed deer densities.

Localized efforts in the Upper Chippewa Area have contributed to increased awareness of invasive species. Several federal, state, tribal and other organizations have conducted invasive inventories and map occurrence information. The Upper Chippewa Cooperative Weed Management Association was established a couple years ago. This group of agency and private individuals help to work more effectively across jurisdicational boundaries by advancing action in control and awareness.

WILDLIFE RESOURCES

The FRSF property supports a broad range of wildlife habitats; from large blocks of mature hardwood forest with embedded ephemeral ponds to younger forests, grass openings, open wetlands, kegs, bogs, lakes, streams and the Flambeau River. As a result, a diversity of species are found here. Wildlife resources within the property are similar to the larger region surrounding the FRSF.

On the forest and in the region, deer densities are high, ranging from 23 to 31 deer per square mile. Deer density goals are not determined by the Master Plan, but are set through the statutory review process, and are updated every 3-5 years. High deer densities are well-documented in the state and present many risks to the long-term health of northern forests. Pre-European settlement deer densities in northern Wisconsin were thought to range between 5 and 10 deer per square mile (Alverson et al. 1988). Higher densities in the FRSF have already led to damage to understory plants, tree reproduction, and the deterioration of the habitat for birds and small mammals. Managing deer numbers will be important to achieving forest management objectives.

Black Bear is another big game species found on the property. Bear densities in Sawyer, Rusk and Price Counties are some of the highest in the State. They have adapted well to the agriculture/forest mix in the region and surrounding the Forest.

Timber Wolves are present throughout the property. Nine known wolf packs exist on, or within, five miles of the property.

Small game species commonly found in the region are also present on the property. These include the gray squirrel, snowshoe hare, and cotton tail rabbit. Upland game birds on the property are ruffed grouse, woodcock and wild turkey. Furbearers include; beaver otter, muskrat, mink, fisher, raccoon, red and grey fox, coyote and bobcat.

The property supports a host of other resident and seasonally present wildlife species that are very important to the ecological and social values of the property. These include resident and neotropical migrant birds and nesting raptors including: Bald Eagle, Osprey and Northern Goshawk. Owls include: Great Horned, Northern Barred, Long-eared and Northern Saw-whet. Small mammals, both observed and documented include: voles, shrews, mice, ground squirrels, northern flying squirrel and bats.

Several species of herptiles are on the forest, including; western fox snake, northern water snake, northern ringneck snake, common snapping turtle, spiny soft-shelled turtle, wood turtle, Blanding's turtle, bull frog, wood frog, green frog, grey tree frog, mink frog, four-toed salamander, blue-spotted salamander, red-backed salamander and mudpuppy.

HABITAT NEEDS AND CAPABILITIES

1. Perpetuate and maintain rotational blocks of early successional forests (including aspen) and habitat types which mimic structural attributes of early succes-

sional habitats (e.g. shrub-carr and alder thickets).

Wildlife Species of Greatest Conservation Need associated with this structural/seral stage include: the Golden-winged Warbler, Veery, Woodcock and Northern Goshawk.

2. Develop and maintain large blocks of mature and multi-story mesic and wet-mesic forests and northern hardwood swamps. Provide stands with ample canopy gaps, and/or dense, shrub sapling patches including stands with a complex understory throughout the forest matrix.

   Wildlife species of greatest conservation need associated with the north-central forest landscape, this structural/seral stage, (and) the FRSF include the wood thrush, black-throated blue warbler, Canada warbler, Olive-sided Flycatcher and Northern Goshawk.

3. Maintain through proper silvicultural practices and BMPs the structural and functional integrity of all wetlands (permanent and ephemeral) including their riparian zones within the Forest and its associated drainages.

RECREATIONAL FACILITIES AND USE

The forest provides many recreational opportunities in a wild and remote setting. River recreation remains one of the primary draws for recreationists, along with ATV-riding, hunting, and fishing. The forest provides a range of rustic camping experiences, including river campsites and two campgrounds, as well as a day-use area and designated beach (Map 2.4: Current Recreation)

LAND BASED RECREATION

Camping

There are a variety of camping opportunities available on the Forest ranging from rustic campgrounds to primitive campsites (Table 2.11). None of the sites are reservable. Rustic campgrounds are traditional campgrounds which have minimal facilities such as hand pumped water, pit toilets, fire rings, and picnic tables. There is no electricity or showering facility.

Campgrounds

Connors Lake is open from Memorial Day Weekend through Labor Day and provides 29 sites. Lake of the Pines is open April 15 – December 15 and provides 30 sites. Each campground has a footpath allowing access to each of the lakes and to a short nature trail. Both have beaches. Vehicle admission stickers and self-registration are required. Campsites are designed to accommodate a single family or a group of up to 6 people. Youth groups (members of an established organization) must be accompanied by one adult with not more than 10 total persons permitted at designated campsite. A dump station is available near the FRSF Headquarters. There are mobility impaired access campsites available at both campgrounds. Table 2.12 lists occupancy rates from 2001-2005 on the forest.

Firewood

Firewood is not available at the campgrounds. Campers are allowed to bring firewood only if the source is within a 50-mile radius of the campground in order to minimize likelihood of bringing the Emerald Ash Borer and other pests or diseases into Wisconsin's forests. Local vendors offer firewood for sale and vendor locations are posted at kiosks in the campground. Cutting live trees and brush in the campground is prohibited.

Backpack Camping

Backpack camping is allowed forest-wide with some exceptions. There is no fee associated, however special camping permit registration is required. Unlike canoe camping, there are no established camping areas. Campers are allowed to camp at any location out of sight of established trails. Camping is not allowed within the wilderness, wild or scientific areas, on Bass or Swamp Lakes, or within intensive recreation areas such as the established campgrounds or picnic areas.

Hunting Camps

An additional and somewhat unique primitive camping opportunity is offered during the November nine-day gun deer season. Deer/hunting camps have been a tradition on the state forest for decades. For some families and hunting parties, hunting camps have provided sport and enjoyment for generations of hunters. Hunter camping is allowed only along certain woods roads. Tents or camper units are allowed.Permits for 'special camping' are issued to hunters and are available at the state forest office. There is no fee associated with this activity. The

TABLE 2.11 CAMPING OPPORTUNITIES ON THE FRSF

	NUMBER OF CAMPSITES	TYPE	AMENITIES
Connors Lake	29	Rustic Family	Limited facilities
Lake of the Pines	30	Rustic Family	Limited facilities
Backpack Camping	NA	Primitive Camping	By permit, no facilities
Canoe Camping	35	Primitive Camping	Water-access only, limited facilities
Hunter Camping	NA	Primitive Camping	By permit, no facilities
Horse Camping	0	NA	NA
Group Camping	0	NA	NA

deadline to apply for the permit is October 31. Permits are valid for the Saturday prior to the opening date until the end of the 9-day deer gun season.

Sturgeon Fishing Camping
This is another unique camping opportunity offered at the Flambeau in which anglers out for the fall sturgeon season are allowed to camp at the Hervas Landing. There is no fee associated with this activity; however a special camping permit is required. Both tents and trailers are allowed.

Day Use Areas
Connors Lake Picnic Area
Connors Lake Picnic Area is a well developed facility with a 300-foot swimming beach with shallow water providing an ideal play area for children. A boat landing, paved parking, fishing, beach-front benches, drinking water, volleyball court, horseshoe pits, pit toilets, and handicapped accessible facilities are available. The picnic area includes a reservable shelter building with electricity. An adjacent area is set aside as a pet exercise area. Connors Lake has very high water quality with some of the best water clarity of any lake in Wisconsin. Better separation of motorized boating or mooring from beach activity is desirable. A daily or annual park sticker is required for use of this facility.

Non-Motorized Trails
Flambeau Hills Trail (Ski, Hike, Bike)
The forest is open to cross-country skiing and has one trail, the Flambeau Hills Trail, groomed for both traditional and skate skiers. Fourteen miles of trail are maintained and an Adirondack picnic shelter is provided. The rolling terrain provides for varying degrees of skiing difficulty, with several bridge crossings and occasional views of the river. In summer the trail is shared by hikers and mountain bikers. There may be opportunity to designate alternate winter and summer uses, as there are few designated hiking trails on the forest. A State Forest trail pass is required and a self-registration station is located at each trailhead. Parking at the southern end of the trail is located off HWY W, one half mile east of the forest headquarters. There is also parking near the northern end of the trail off from HWY 70 and Snuss Blvd. Table 2.13 lists trail and trail miles on the forest.

Mountain Biking
Mountain biking in the FRSF occurs mainly on the Flambeau Hills Trail. The wide nature of the trail enables it to be shared with hikers. Mountain biking seems to be decreasing somewhat in Wisconsin but is popular in the region. Bikes are not allowed on developed nature trails.

Hiking
Hiking is available throughout the forest on forest roads and hunter-walking trails, although there are no designated hiking trails per se. Hiking is prohibited on the Flambeau Hills Trail once it is groomed for the ski season.

Hunting and Trapping
Hunting for big and small game is a popular time-honored tradition and public use of this property. The FRSF is a popular hunting destination, attracting deer, bear and grouse hunters from around the country. The FRSF offers abundant opportunities for small and big game hunting and trapping. The diverse landscape of different forest types, lakes and wetlands currently found on the property provides important habitat for waterfowl, whitetail deer, black bear, ruffed grouse and other game species. This large forest tract provides ample opportunity for a remote hunting experience, a popular trend within the hunting community.

Hunter-Walking Trails
Habitat for early successional species, including ruffed grouse, is managed at locations throughout the forest. A network of hunter-walking trails is maintained for use during the fall hunting season. The Flambeau Hills Trail doubles for this purpose and additional trails can be found in several locations. Maps of the hunter-walking trails are available on the FRSF web site.

Horseback Riding
Although there are no trails or parking areas specifically designated for horseback riding, it is allowed on the snowmobile/

TABLE 2.12 CAMPGROUND OCCUPANCY

CAMPGROUNDS	2001	2002	2003	2004	2005
Lake of the Pines					
Number of Annual Campers	872	730	1097	NA	772
% Annual Fill Rate	8%	7%	10%	NA	7%
Conners Lake					
Number of Annual Campers	543	392	670	NA	571
% Annual Fill Rate	5%	4%	6%	NA	5%

ATV trail when they are groomed. Horseback riding is also allowed on all State Forest roads.

Motorized Recreation

Flambeau River State Forest ATV Trail

There is a total of 38 ATV trail miles on the Forest (Map 2.4). The trail is open for ATV use from May 15-November 15. The trail provides access to the Tuscobia State Trail which then connects with the CNNF's Deadhorse Run trail system, providing nearly 170 miles of ATV trail. The Forest's ATV trail ends near County highway M in the southern third of the forest. An additional 2-3 miles of trail would be needed to connect to Rusk County Trails south of the property boundary and another 2-3 miles would be needed to connect to the Price County trails east of the property boundary. Local businesses offer camping, lodging facilities and services. Parking is available at Fisherman's Landing, Co. Hwy. M, Flambeau Hills, and Dix Dox.

Snowmobile Trails

There are 55 miles of trail on the state forest. This trail provides access to the Tuscobia State Trail and the Sawyer County trail system to the north and the Price and Rusk County trail systems to the south. Day parking is available for vehicles with trailers at the Flambeau Hills Trailhead and Dix Dox.

Cycles, 4x4s, and Other Licensed Motor Vehicles

The property does not have any trails designated for this use. Vehicles meeting street-legal requirements may operate on open roads (including logging roads) that are not bermed, gated or signed as closed. Administrative Code NR45 regulates motorized use on the Forest.

Parking Areas

There are numerous parking areas throughout the Forest. Three parking lots are designated as fee areas (see Table 2.14).

Wildlife Viewing

The Flambeau River State Forest is listed as stop #71 on the Great Wisconsin Birding and Nature Trail system. Sponsored by the Endangered Resources Fund, the Wisconsin Coastal Management Program, the Wisconsin Bird Conservation Initiative, and local chambers of commerce, the program provides a comprehensive guide to wildlife viewing opportunities and travel amenities in the Lake Superior Northwoods Region. Information is available on-line at: http//:www.wisconsinbirds.org/trail.

Scenic Areas

Little Falls-Slough Gundy

This popular location provides a spectacular view of the rugged whitewater of the South Fork of the Flambeau River. The scenery includes large boulders and rushing water with the peaceful elegance of a pine forest background amidst the sound of roaring rapids. It provides for white water canoeing and kayaking experiences. Maintained trails are provided both to Little Falls and Slough Gundy.

Bass Lake Wilderness

Designated in 1983, Bass and Swamp Lakes were designated as wilderness lakes to protect and perpetuate their natural

TABLE 2.13 TRAILS AND TRAIL MILES ON THE FRSF

TRAIL NAME OR LOCATION	TRAIL TYPE	MILES	FEES	DESIGNATION
Bass Lake Wilderness Scenic Area	nature hiking	0.4	None	Non-motorized
Connors Lake Campground	nature hiking	0.5	Entrance sticker	Non-motorized
Flambeau Hills Ski Trail	ski/hike/bike	14.0	Trail pass for skiing	Non-motorized
Lake of the Pines Campground	nature hiking	1.0	Entrance sticker	Non-motorized
Little Falls-Slough Gundy Scenic Area	nature hiking	0.5	None	Non-motorized
Snowmobile	snowmobile	55.0	None	Motorized
ATV Trails (along snowmobile trail)		40.0	None	Motorized
Sobieski Flowage	nature hiking	1.0	None	Non-motorized
TOTAL MILES		120.4		

beauty. The area is popular for fishing, hunting and sightseeing. To enhance the natural setting of this 94-acre lake and its shore land, motorized vehicles, motor boats, mooring of boats overnight, and camping are prohibited. An additional five wild lakes are included on the forest: Little Pelican, Hanson, Champagne, Mason, and Evergreen Lakes.

TABLE 2.14 PARKING AREAS ON THE FRSF

LOCATION	NUMBER OF STALLS	SURFACE
Hwy. & Snuss	10 vehicles	Gravel
Bass Lake Rd.	10 vehicles	Gravel
Hwy. W & Hwy. M	5 vehicles	Gravel
Connors Lake Picnic Area*	40 vehicles	Asphalt
Connors Lake Campground*	4 vehicles	Gravel
Lake of the Pines Campground*	2 vehicles	Gravel
Hwy. W Landing	20 vehicles	Asphalt
Forest Headquarters	13 vehicles	Asphalt
Nine Mile	9 vehicles	Gravel
Old Oxbo Parking Lot	10 vehicles	Gravel
Flambeau Hills N. Parking Lot	11 vehicles	Gravel
Dix Dox	26 vehicles	Asphalt
HWY W	10 vehicles	Asphalt
*Flambeau Hills	40 vehicles	Gravel
Fisherman's Land.	10 vehicles	Gravel
Little Falls/Slough Gundy	18 vehicles	Gravel
Hervas	6 vehicles	Gravel
Beaver Dam	12 vehicles	Gravel
Camp 41	12 vehicles	Gravel
Sobieski Flowage	5 vehicles	Gravel
Sobieski Hunter Walking	5 vehicles	Gravel
Pelican Lake	2 vehicles	Natural soil
Connors Lake Boat Land.	15 vehicles	Asphalt
Lake of the Pines Boat Land.	10 vehicles	Asphalt
Payne Farm	5 vehicles	Gravel
Old Wayside – Hwy. 70	20 vehicles	Gravel
Robinson – Upper N. Fork	15 vehicles	Gravel
Holtz – Upper N. Fork	5 vehicles	Gravel

**Fee Required*

Sobieski Flowage

A once-active cranberry farm has been restored by the Ruffed Grouse Society, Plaza Farms, the Wildlife Restoration Association and the Department of Natural Resources to provide additional wetland habitats. The area includes a flowage, waterfowl nesting areas (the old cranberry beds) and several miles of hunter-walking trails. Presently it is used for fishing, hunting and trapping. Due to its shallow water and winter freezeout, fishing opportunities are limited.

Education and Interpretation

Summer naturalist programs provided by property staff are held on Saturdays at the Connors Lake Picnic Area in the Flambeau River State Forest. The programs are free of cost and the public is invited to attend. Two nature trails are provided, one located at Connors Lake Campground and another at Lake of the Pines.

Non-timber resource gathering

The public has some interest in gathering materials from the forest including: Christmas trees, boughs, mushrooms, bark, moss, birch tops, and berries. Moss collection is limited to Native Americans. Christmas trees and boughs require a gathering permit. Under existing treaty rights, Chippewa Nation tribal members retain gathering privileges on the Forest by permit issued by Forest staff.

WATER BASED RECREATION

Boating / Canoeing / Kayaking

Much of the recreational activity and identity of the Flambeau River State Forest is centered on and along the Flambeau River. Canoeing and kayaking is a long-established activity here. The river offers excellent paddling for all skill levels, from beginner to expert. Two major river branches extending north to south through the forest provide 75 miles river and 38 rapids. Rapids ranging from class I to class V skill levels attract a variety of paddling enthusiasts. Canoeing and kayaking is the property's most popular recreation. Five nearby outfitters provide gear rental and services. Table 2.15 lists canoe campsites and associated amenities.

Canoe Camps

There are 14 canoe camps located along the river in the main unit of the Forest, each containing 2 or 3 sites. Each site can accommodate 6 people. Campsites are on a first-come first-serve basis and include a picnic table, fire ring, and pit toilets. There are no required fees or permits associated with this type of camping. Campsites must be accessed by watercraft, and are to be used one night only at each site. River campsites do not meet current NR 44 standards for campground or primitive campsites.

Landings

There are nine landings along the length of the river within the state forest boundaries. No fee is required for using the landings, but boats must not be moored, anchored or left unattended. Table 2.16 lists boat landings on the forest.

River Recreation

River recreation is one of the primary activities on the Flambeau River State Forest. The Flambeau River provides one of the few opportunities in the state for multi-day paddling and camping. The remote wildness of the river and forest lures individuals and families from throughout the Midwest. For many visitors, the "Flambeau" is a primary travel destination.

To study resource demand on the river, informal inventories and assessments were conducted on the forest. Aerial observation flights of the Upper, North and South Forks of the Flambeau River were conducted from May-August of 1986 and again in 2006 and an informal survey was circulated among "river floaters" on the North Fork from mid May-September, 2007. The findings are as follows:

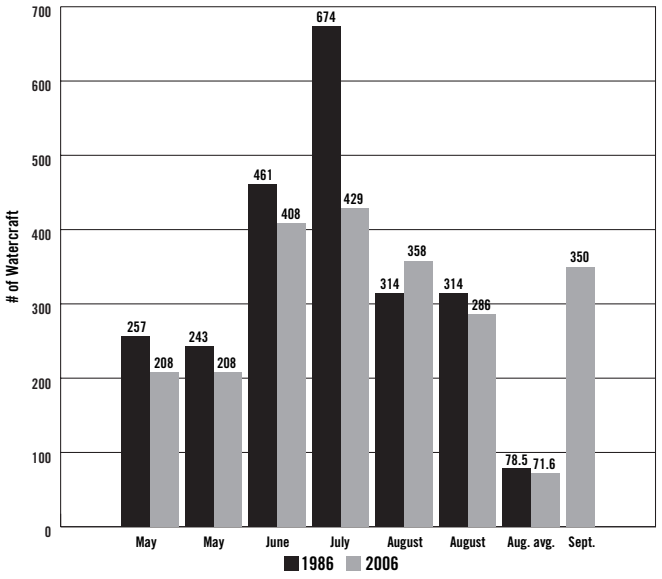
- Paddling the Flambeau River remains popular for both day-use and overnight trips. Attraction to the Flambeau remains unchanged – the majority of visitors come here to canoe a wild and scenic river, experience solitude, and spend time with their families. They also come to fish, camp, and view scenery and wildlife.
- The mode of river travel has shifted with as many kayaks seen on the river as canoes.
- Overall river use has increased slightly over the past two decades (Figure 2.2). User levels on the North Fork remain stable, and day-use is as popular as ever. On the North Fork more use is occurring north of Highway W than south of this location. The South Fork of the river has seen a decline in river use. This section of river is less family oriented with more challenging rapids and fewer camping options.
- Individual campsites with the highest use occur both north and south of Highway W. Some sites, Cedar Rapids and Oxbo receive heavy use.
- Visitors are generally satisfied with their experience on the river. They appreciate the wild and scenic qualities of the river corridor. Most consider some type of forest management acceptable as long as the scenic and natural qualities of the shoreline are maintained.
- The most negative comments we hear are not easily addressed – weather, low water levels and, biting insects.
- Reports of negative interactions with others – noise, rowdy or rude behavior were received. A general deterioration of some campsites and landings, and occasional littering is reported.

TABLE 2.15 CANOE CAMPSITES AND AMENITIES

CANOE CAMPS	NUMBER OF SITES	CAPACITY	FISHING	DRINKING WATER	PIT TOILETS	HANDICAP FACILITIES
County Line Camp	2	12	x		x	N/A
Oxbo Canoe Camp	3	18	x		x	N/A
Log Creek Camp	2	12	x		x	N/A
Mason Creek Camp	2	12	x		x	N/A
Babb's Island Camp	2	12	x		x	N/A
Headquarter's Camp	3	18	x		x	N/A
Boy Scout Camp	3	18	x		x	N/A
George's Island Camp	3	18	x		x	N/A
Camp 41	3	18	x	x	x	N/A
Wannigan Camp	2	12	x		x	N/A
Forks Camp	2	12	x		x	N/A
Bear Run Camp	2	12	x		x	N/A
Hervs landing Camp	3	18	x	x	x	N/A
Cedar Rapids Camp	3	18	x		x	N/A

- Some river recreationists would like to see improved access and more campsites. At some times and locations, occasional user-conflict or congestion occurs for various reasons:
- Ease or difficulty of paddling a particular stretch of river impacts user choices. For example the North Fork, south of Highway W, is popular because it offers the thrill of repeated whitewater rapids yet, for the most part, is more easily paddled than other segments. A stretch of river may be popular for its scenery or fishing opportunities, or the level of whitewater challenge it offers, while other river segments are more desirable for families with young paddlers.
- Campsite location is key to an overnight river trip and the distance that paddlers are willing or able to paddle. Choice is related to proximity to popular paddling routes, and available caping options.
- Put-ins and take-outs are important in determining the length of a trip, starting and ending times, day trip vs. overnight, and experienced vs. novice or occasional paddlers.
- The majority of canoe or kayak groups on the Flambeau are relatively small, 8 or less people, and most are satisfied with the size of available campsites. About a fifth of river recreationists come as organized groups – scouts, church groups, canoe clubs – in parties of 9 to 12 or more. Some groups contain up to 30 or more people and far exceed available campsite facilities.

FIGURE 2.2 TOTAL WATERCRAFT ON THE FLAMBEAU RIVER FOR THE 20 DAYS SURVEYED



River users indicated there two areas of improvement that would enhance their experience: (1) due to the increase in group camping, a group campground would minimize user conflicts and accommodate the needs of larger groups, reduce the impact on smaller campsites, and enhance the quality of user experience, (2) establishment of a landing at a key location determined by established patterns of river use. Such a landing would provide more trip options to river travelers, vary start and end times for river trips, disperse paddlers on the river thereby maintaining the quality of user experience, and reduce congestion and crowding on the river and at landings.

South Fork of the Flambeau River

Approximately 10 miles of the smaller South Fork of the Flambeau River run through the forest. Known for its rapids

TABLE 2.16 BOAT LANDINGS ON THE FRSF

LANDING NAME	LOCATION	DRINKING WATER	PARKING CAPACITY	LANDING TYPE
Nine Mile	Highway 70	X	7	Boat & canoe
Dix Dox (ramp)	North of Hwy. 70 on Oxbo Dr.	X	26	Boat & Canoe
Highway W	Hwy. W, at north fork	X	10	Canoe
Camp 41	Camp 41 Rd. east of the river	X	12	Canoe
Fishermans	Hwy. M south of Bear Creek Rd.	X	10	Canoe
Hervas (ramp)	End of River Rd., east of river	X	6	Boat & Canoe
Beaver Dam	Beaver Dam Rd. west of river		12	Canoe
Connors Lake (ramp)	Hwy. W, west of Hwy. M	X	15	Boat & Canoe
Lake of the Pines (ramp)	End of Lake of the Pines Rd., at campground	X	10	Boat & Canoe
Robinson	Upper N. Fork below Turtle Flambeau Flowage		15	Boat & Canoe
Holtz	Upper N. Fork below Turtle F.F.		5	Boat & Canoe
Pelican	Pelican Road		2	Carry-in
Bass	Bass Lake Road		10	Carry-in

and whitewater paddling (Class I-V rapids are found here), this stretch of river has high seasonal variability of water levels which prevent paddling in the summer. Figure 2.3 shows average stream flow data from two stations near the Forest. Historic data (collected annually from 1928-1976) illustrate these seasonal peaks in flow. From early spring to mid June at the latest, water levels are high and attract many paddlers to this highly scenic and challenging whitewater run. Flow levels and recreational use drop precipitously after June. Fisherman's Landing on Cty. M provides designated boat access. Currently, there are no canoe campsites on this stretch of river.

The Upper Flambeau

The Upper Flambeau Unit (Upper North Fork Flambea Natural Area) comprises 1,114 acres. This area is approximately 300 feet wide on each side of the river stretching 13 miles downriver below the Turtle Dam and is considered a "public use area." The public was assured when purchased by the State that the natural quality of this stretch of river would be retained. The Upper Flambeau provides a primary connecting route between public lands to the east and west. There are two landings along this stretch of river and no designated campsites. Due to its small size and lack of designated recreational uses, the area is used primarily for "put-ins and take-outs" by river users.

Swimming

There are three designated swimming beaches (with bathrooms) on the state forest: Connors Lake picnic area, Connors Lake Campground and Lake of the Pines campground. State forests do not supply lifeguards at any of their swimming beaches. Swimming also occurs at undesignated sites on the forest, most notably at Slough Gundy, the Cedar Rapids river campsite, and at the landing at Hwy W.

Fishing

The Flambeau River supports musky, walleye and smallmouth bass, red horse, sturgeon and catfish species. Connors Lake and Lake of the Pines fishing opportunities include walleye, bass, musky, northern pike and panfish. Bass lake provides largemouth bass and bluegills. Price Creek and Hackett creek are well known fly fishing areas. Trout can be found in just about every creek that empties into the Flambeau River. Numerous traditional fishing areas located along the river are used extensively by the local community.

SPECIAL RECREATION SETTINGS

Two wild areas (established on the northwest and southern portions of the forest), two state natural areas, three research areas and two wilderness areas are identified on the forest.

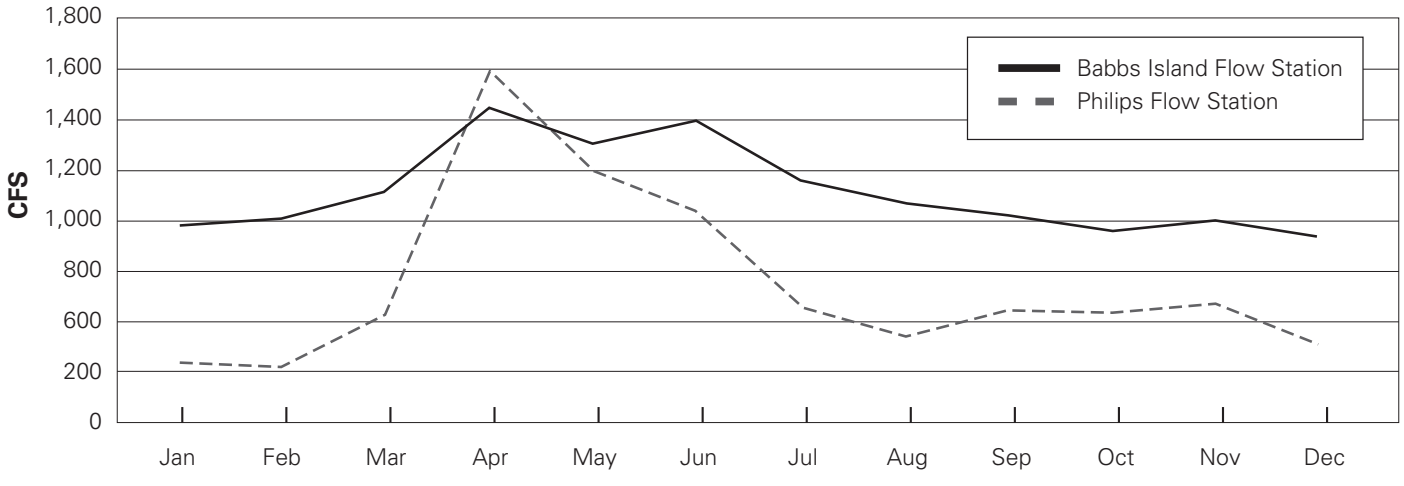
Bass Lake and Swamp Lake were designated as wilderness lakes in 1983 to protect and perpetuate their natural beauty. An additional five wild lakes are included on the forest: Little Pelican, Hanson, Champagne, Mason, and Evergreen Lakes.

SOCIAL AND CULTURAL RESOURCES

LAND OWNERSHIP AND LANDUSE WITHIN AND ADJACENT TO THE PROPERTY

The main unit of the Flambeau River State Forest is over 90,000 acres in size. It has an acreage goal of 93,530 acres, including the non-contiguous Upper Unit of the state forest. Currently the Department has acquired 90,281.5 acres (96.53% complete). The main unit of the Flambeau River State Forest encompasses over 54 miles of river corridor on the Flambeau River, including the North and South Forks, with more than 90% of the total distance in state ownership. A significant portion of the private ownership within the main unit of the FRSF occurs around the larger lakes and along the Flambeau

FIGURE 2.3 | AVERAGE STREAM FLOW-NORTH AND SOUTH FORKS OF THE FLAMBEAU RIVER



River (see Maps 1.1: Regional Ownership and 2.1: State Forest Ownership)

The Upper Unit of the Flambeau River State Forest Natural Area consists of about 1,000 acres of land in state ownership. This unit stretches for 14 miles along the Flambeau River, downstream of the Turtle Flambeau flowage area. The State Forest was expanded to include the Upper Unit in 1986, when the Wisconsin DNR purchased the majority of this river corridor, comprised mainly of 300 feet off either bank for much of this distance. There remain four major private in-holdings along the river corridor.

Other large blocks of public land are near the State Forest. They include: the Chequamegon National Forest, county forest land, and other state-owned lands such as the Kimberly Clark Wildlife Area, the Hay Creek-Hoffman Lake Wildlife Area, and the Turtle Flambeau Scenic Waters Area. Private lands in the area include industrial forests, non-industrial private forests, recreation lands and permanent residences.

Primary uses of the lands of the region include recreation, timber production, limited agriculture, and residential and tourism development. While some of the private properties within and around the state forest remain enrolled in a state forest tax program, such as Forest Crop Law or Managed Forest Law, they are experiencing increasing development pressures, especially on lakes, rivers and streams. This is also true of the neighboring, private Industrial Forests.

HISTORICAL AND ARCHAEOLOGICAL RESOURCES

There are no recorded historical or archaeological sites or structures on the Upper Flambeau River unit of the forest.

On the primary unit of the FRSF, there are 13 recorded historical sites and 7 recorded archeological sites. There may be other sites on the property which are known but not recorded. The historical structures are mainly state forest buildings and old residences. There are an additional 14 historical structures not within the forest boundaries, but close by that were part of an early settlement. The FRSF headquarters is an historic structure representative of the early logging days, built in the 1950's. The archeological sites on the forest range from the archaic period to historic Euro-American times. A campsite or village for early Native Americans was situated where the North and South Forks of the Flambeau meet. What are today the areas of Lake of the Pines, Papoose and Connor's Lake was once a village and burial site for Native Americans during the late Woodland period. Another Native American archeological area is around Deadman's Slough on the North Fork. This site, from the early archaic time, was a workshop, village and/or burial site.

There have been no intensive surveys to identify cultural resources; therefore, many archaeological sites (and likely some historic structures as well) which surely occur within the Forest, remain undiscovered and unreported. Archaeological sites would be expected to occur along the elevated margins of the river's waterways, especially at the confluence of rivers, and the inlets and outlets of rivers on lakes.

Ceded Territories and Tribal Use

The FRSF lies within the ceded territory of the Chippewa tribes. All bands of the Lake Superior Chippewa retain the rights to such activities as: hunting, fishing, trapping and gathering rights as a result of the treaties of 1837 and 1842. The Lac Court Oreilles Band is the closest Tribe to the FRSF, and to date, are not major users of the forest or its resources.

ADMINISTRATIVE AND OTHER NON-PUBLIC USE FACILITIES OR STRUCTURES

ADMINISTRATIVE AND OPERATIONS BUILDINGS

Forest staff are housed in a 1950's era historic log-cabin. This building houses the forest management program and staff and serves as a public contact station. The property has several other non-public facilities and structures, the majority of which are used as maintenance shops and storage. There are two historic buildings on the property, including a CCC-era camp. Table 2.17 lists current non-public facilities on the forest.

Correctional Facility

Flambeau Correctional Center (FCC) is located in the Flambeau River Forest, approximately 10.5 miles north of Highway 8 on County Road "M" in Sawyer County. Currently, FCC is an 80-bed minimum security correctional facility for adult males. The Center provides various types of off-grounds work such as DNR forestry labor, work release with private businesses, and community service projects.

TABLE 2.17 NON-PUBLIC FACILITIES ON THE FRSF

FACILITY	DNR BUILDING NUMBER	SQUARE FEET	HISTORIC BUILDING
Forest Headquarters	523	1045	Yes
Metal Pole Shed	3937	2400	No
CCC Camp	522	3680	Yes
Garage	524	576	No
Shop	527	3456	No
Tool Shed	528	224	No
Dynamite House	529	144	Yes
Nursery Stock/Cold Storage	7090	98	No
Stream Flow Measure Station	7091	25	Yes
CCC Dynamite Cap House	7093	25	No

MANAGED ROADS

The forest has 4 types of roads on the property. There are 60.5 miles of open forest roads, 47 miles of town roads, 21 miles of county roads, and 9 miles of state highway. The Forest recently completed a Road Access Plan (2006) and maintians approximately 61 miles of roads for public use. The plan focuses on major corridors through the Forest while providing access to forest resources for hunters and other recreationists. Individual unit maps can be found on the Forest's website (http://www.dnr.state.wi.us/forestry/stateforests/SF-Flambeau/Flambeau-maps.htm). Road development varies from highly developed state and county roads to the lightly developed, but permanent woods roads. The State is responsible for the maintenance and upkeep of all forest roads, which will be crowned, ditched, and graveled. Towns and counties are responsible for road maintenance within their jurisdiction.

DAMS

Sobieski Flowage is a 66 acre impoundment located in the southeastern section of the forest. The area was a former cranberry farm until its purchase by the State. Upon the State's purchase of this property the cranberry operation was discontinued but the dam was kept operational. The dam consisted of an earthen dike with a controlled whistle tube. In the early 1980's a portion of the dam's crown was weakened and collapsed causing the partial draw down of the flowage. A project was approved in 1993 to repair the earthen structure. The plans included a normal pool area of 66 acres and a normal storage volume of 110 acre feet. The project was done in cooperation with the Roughed Grouse Society, Plaza Farms, the Wildlife Restoration Association, and the Department of Natural Resources and completed in 1997. To protect the main dam from further wave erosion, the dam face was reconstructed with riprap in 2000. Today, the flowage includes populations of panfish, perch, and northern pike. It also includes waterfowl nesting areas and several miles of hunter walking trails.

MANAGEMENT ISSUES

Several major planning and management issues have been identified by property staff, the public, and the planning team for review and discussion in the planning process.

RESOURCE MANAGEMENT

The following have been identified as potential management issues:

- Evaluation of the quarter mile wilderness area designation along the river corridor.
- Examination of existing property boundary and expansion options.
- Forest management activities while considering wilderness areas, high conservation value forests, research and scenic areas. General forest management objectives as well as future management of the big block area.
- Research—The forest provides many research opportunities and has ongoing studies.
- Action Plan for aquatic and terrestrial invasives.
- Upper Flambeau land base—management and property designation and management responsibility with adjacent Department lands.

RECREATION ISSUES

The following have been identified as potential recreation management issues:

- Future of the river recreation program (camping, take-outs) due to increase in large groups and conflicts between users
- Camping (group and single) wilderness experience, user conflicts
- Access
- Adequate supply and location of sites
- ATV trails-potential trail connectors at south end of existing trail and possible new trail development and ATV amenities.
- Unauthorized boat landings and access.
- Camping facilities-are existing facilities adequate and meeting user needs
- Day use areas – appropriate level of development
- New types of recreational trails (interest in horse, skijoring)
- Access–roads open to public and development level/standards (Access Plan completed in 2006)

FINDINGS AND CONCLUSIONS

This section presents the findings and conclusions from the Flambeau River State Forest (FRSF) Regional and Property Analysis. The first two sections of this document summarize existing conditions and trends on the forest and in the region. Specific trends addressed include ecological significance and capability of the property, as well as the property's recreational needs, opportunities, limitations and significance. This section does not include every finding or draw every conclusion; rather it provides a summary of the major findings.

The findings and conclusions presented here will help guide the Flambeau River State Forest's future management, use, and development by highlighting significant opportunities and limitations on the property, and defining the reasonable range of management alternatives considered in the master planning process. As planning for the property continues, conclusions will ultimately help define the property's future natural landscape, forest resources, and recreation amenities and uses.

ECOLOGICAL SIGNIFICANCE AND CAPABILITY OF THE FLAMBEAU RIVER STATE FOREST

SUMMARY OF THE PROPERTY'S ECOLOGICAL SIGNIFICANCE AND CAPABILITY

The FRSF is a large block of publicly owned forest in a region with an abundance of publicly owned forested lands. Over 50% of the forestland in the region is owned by public entities. Public forests in the area include the FRSF, the Chequamegon-Nicolet National Forest (CNNF), and Sawyer, Rusk, and Price county forests. Many of these forests abut each other, creating one of the largest publicly owned blocks of forestland in the state. The FRSF area is one of the state's most densely forested areas. Many of the public land blocks, including the FRSF, have very few private in-holdings. In-holdings that do exist are predominately forested. The FRSF contains one of the state's largest unfragmented blocks of forest cover with diverse forest types and age classes Lands held in private ownership near the FRSF are largely owned by industrial forest owners. The large forest base within the property and region provides an opportunity for landscape management while supporting a range of cover types and age classes.

Many industrial forest lands have been recently sold and some new private forest owners are less interested in timber production. National, state and county forests may be expected to provide increased levels of forest products to maintain existing supply. The fragmentation of land ownership into increasingly smaller parcels in the region is likely to continue. There will be a corresponding decrease in the number and quality of opportunities to "block in" and connect the existing large blocks of public conservation lands.

The property's ecological character is typical of the North-Central Forest Ecological Landscape. Unique ecological features on the property and ecological landscape include mature northern hardwood forests, seeps and vernal pools, remnant stands of hemlock-hardwoods, and habitats associated with the Flambeau River and its tributaries. One of the most ecologically significant features on the forest is a 50-mile stretch of the Flambeau River and associated river habitats. In addition, the forest contains a small number of remote undeveloped lakes.

Management history, soil types (Silt-Loam), and natural disturbances (wind) have been important agents in forming the composition, structure, and spatial distribution of forest types on the FRSF. Wind disturbance is the primary natural process that influences the property. Wind events occur at a fairly regular interval on the property, with intensity varying from 500-acre to 30,000-acre (1977) events.

Forest Management Capability

The FRSF supports a diverse range of primarily deciduous forest cover types, including northern hardwoods (making up almost half of the property's forested acreage), aspen, swamp hardwoods, and fir/spruce. The FRSF is capable of maintaining a diverse forest cover type, and producing high-quality northern

hardwood saw logs through even and uneven-aged management systems.

The forest also contains areas with high water table that support the growth of swamp hardwood, and swamp conifer forest types. Current management has not focused on swamp conifers. Pine management on the property is limited, due to the primarily sandy-loam and silt-loam soils, which are more suitable for nutrient-demanding hardwood species. Oak management opportunities are also limited, due to primarily mesic site conditions and the advanced regeneration of shade tolerant species in the understory. Deer browse pressure impacts the regeneration of these and other species on the forest.

Several cover types are present on the forest, providing habitat for a variety of species. Many of the early successional species such as aspen/birch are decreasing slightly in acreage due to natural succession, although they are present in much of the surrounding landscape. Opportunities exist to manage early successional species using even-aged management systems. The property also offers the opportunity to maintain large patches of older forest with enhanced structural attributes currently lacking in most of the surrounding landscape.

CAPABILITY OF THE PROPERTY TO SUPPORT REGIONAL ECOLOGICAL NEEDS AND OPPORTUNITIES

Native Communities

Several regionally representative natural communy types are present on the property, and in the surrounding region. These communities offer management opportunities for biodiversity conservation, including the restoration and maintenance of high-quality examples of Northern Mesic Forest, Northern Dry-mesic Forest (a rarity in this landscape), Northern Wet-mesic Forest, Foersted Seeps, Ephemeral Ponds, several wetland community types, undeveloped lakes, and stream systems.

The hemlock component of the Northern Mesic Forests on the property has declined in frequency due to large catastrophic wind events, micro-climate changes, and high deer populations. This species will continue to be a challenge to maintain on the forest.

Water and wetland resources on the property provide opportunities to preserve high-quality lake, river, stream, and wetland habitats.

THREATENED, ENDANGERED, AND SPECIES OF SPECIAL CONCERN AND WILDLIFE SPECIES OF GREATEST CONSERVATION NEED

The FRSF supports several Natural Heritage Inventory (NHI)-listed threatened, endangered, and special concern species, both plants and animals. These include 10 bird species, 2 dragonflies, 2 reptiles and amphibians, 7 plants, and 4 mussels. Of these species, 2 are endangered, 6 are threatened, and the remaining are species of special concern. The FRSF also hosts several Wildlife Species of Greatest Conservation Need (SGCN), as identified by Wisconsin's Wildlife Action Plan (2006). Of these species, those with the highest frequency include 6 mammals, 22 birds, 4 herptiles and 3 fish. The contiguous blocks of large, intact forest and water resources (rivers, seeps and vernal pools) on the property and in the region provide significant habitat for these species.

General Ecological Needs and Opportunities

Given its remote location and generally low recreational use, the FRSF has few invasive species with established populations. Early invaders such as garlic mustard, buckthorn, and purple loosestrife are present on the property, but are relatively small in patch size and distribution. Rapid response in control, as well as an active program of prevention would limit the introduction and establishment of more invasives.

The FRSF abuts over 500,000 acres of the Chequamegon-Nicolet National Forest to the north and over 275,000 acres of county forest lands belonging to Sawyer, Rusk, and Price counties on the west, south, and east. Together, this extensive block of permanently protected, largely undeveloped forestland provides significant landscape-scale ecological values. Most significantly, the block of forestland in the FRSF region provides interior bird habitat and wildlife travel corridors, which reduce the potential for creating isolated populations.

Several long-term ecological research areas exist on the forest. These areas are intended to provide information for future management options and decisions on the state forest. Maintaining these research sites and potentially establishing future research sites aid the property, the region, and the state in making sound, science-based management decisions. Current research efforts focus on the management and characteristics of old-growth northern hardwood forests. Some designated research sites may need evaluation, as little work has occurred in recent years.

Three Conservation Opportunity Areas (COAs) are present, in part, on the FRSF and are associated with numerous SGCN (4.10 Upper Flambeau Woods, 4.11 Skinner Creek, and A.41 Flambeau River). These COAs are associated with an extensive older deciduous-coniferous forest with embedded lakes, wetlands, and other community types and are of Upper Midwest / Regional significance. Information and maps related to the wildlife Action Plan and Species of Greatest Conservation Need can be found at this website: http://dnr.wi.gov/org/land/er/wwap/implementation/.

RECREATION NEEDS, OPPORTUNITIES, SIGNIFICANCE, AND CAPABILITIES OF THE FLAMBEAU RIVER STATE FOREST

SUMMARY OF THE PROPERTY'S REGIONAL RECREATION SIGNIFICANCE

The FRSF region has few state or federal highways and no major population centers. Overall recreational demand on the property is low and relatively steady. The recreational environment of the FRSF region is strikingly different than the popular tourist areas of the lake districts in north-central and northwestern Wisconsin. In contrast, the recreational environment of the Flambeau region is defined by its expansive, unbroken, and "wild" public forest lands and rivers and a lack of lakes and highly developed recreational attractions. This area is especially known for its hunting, canoeing, fishing, trapping, and hiking opportunities in a remote, backcountry setting, although more "intensive" recreational activities, such as ATV riding and car camping are popular as well.

Recreationally speaking, the crown jewel of the FRSF is its namesake, the Flambeau River. Over 50 river miles flow through the property. The combination of clear waters with good water levels all year, predominantly "wild" shoreline, occasional whitewater drops, abundant secluded campsites, and the opportunity for multi-day canoe trips, make this river one of Wisconsin's exceptional recreational resources. The North Fork of the Flambeau River is considered one of the Midwest's premier rivers for canoeing and camping.

As hunting opportunities on private lands become more limited, more recreational users are coming to the FRSF for its abundant hunting opportunities. The property offers hunting for a wide variety of game species in areas with easy access, as well as in areas with more challenging access and fewer hunters.

Except for the Flambeau River, recreational opportunities on the FRSF have much in common with what is provided by the other major public lands in the region; primarily "less developed" and more remote types of recreation as well as opportunities for ATV riding and snowmobiling. Campsites are abundant in the region, but there is an unmet demand for campsites offering more developed facilities, such as showers and flush toilets. There is also regional demand for more miles of ATV trails and for ATV camping opportunities.

RECREATION CAPABILITIES AND SIGNIFICANCE

Remoteness

Predicted population growth in the FRSF region is low in comparison to other regions within the state. Nearby towns are rural and widely dispersed. Due to its remote location with few major highways or population centers, recreational demand within the forest is generally low and focused on the river and more remote recreational experiences. Statewide, this type of opportunity is limited and growing rarer as larger blocks of private land are subdivided. The FRSF is positioned to maintain or expand its recreational niche of providing wild and remote outdoor experiences to various types of recreation users.

The long distance of the FRSF from major population centers, along with the lack of major highways serving the area, will likely mean future growth in recreational use levels on the property will be relatively low compared to other forests and parks across the state.

Recreation Use Trends

Current trends indicate that recreational users within the state are changing. Northern regions are heavily impacted by seasonal housing, tourism, and an aging resident population. Older residents generally enjoy quieter, lower impact activities such as viewing birds, driving for pleasure, and camping in more developed facilities. Younger generations generally participate in more active activities such as jogging, inline skating, developed camping, paintball, mountain biking and riding ATVs. There may be opportunities to diversify or enhance recreational opportunities and facilities on the FRSF to better meet the needs of younger and older visitors without diminishing the capability of providing abundant, high quality opportunities for remote, backcountry experiences.

River Use

The 50-mile length of the Flambeau River corridor and its wild, undeveloped river shoreline are the prominent resource attractions on the FRSF. The Flambeau River is used for a variety of recreational activities such as canoeing, kayaking, camping, fishing, boating, swimming, and scenic and wildlife viewing. Different river segments offer a variety of recreational environments and challenges, including easy and intermediate whitewater experiences, river floats, and a range of river widths from narrow to wide. This variety allows the river, and the property, to serve a broad range of interests and skill levels.

Visitor use of the river has remained steady, but users are changing; some seek solitude, others seek group outings; some want day-trips, while others want multi-day trips and primitive camping. The majority of river campsites are at or over capacity, with many sites and tent areas showing signs of heavy use and deterioration. Occasional crowding and user conflict occur at some camping locations and river landings. Many of the campsites are clusters of two or three sites, which do not provide for camper solitude.

Opportunities may exist and should be explored to improve river access and facilities to better accommodate changing use

patterns while maintaining or enhancing the overall river experience.

Developed Campgrounds

There is an abundance of camping in the FRSF region; however, there are few developed campgrounds. Most public campgrounds in the region are rustic, without electric hookups, showers, or flush toilets. These sites are not generally accessible to those with larger camping trailers or motor homes. Campgrounds within the FRSF are important in helping to fill campsite demand within the region. However, current campground use on the FRSF is below capacity. Some campers would like to see a more developed camping experience available.

As the FRSF works to meet user demands, the management challenge will be to accommodate some level of developed camping facilities and activities while maintaining an appropriate fit with the forest's more remote character.

ATVs

Regional Trail System

ATV use has increased significantly over the last 10 years. ATV trails are abundant in the FRSF region, with over 700 miles of trail. The Flambeau River State Forest provides nearly 40 miles of trail, which connects with the 74-mile Tuscobia Recreational Trail (a converted rail grade) which, in turn, links to the 95-mile USFS Dead Horse ATV trail system. This linked system provides significant regional riding opportunities. In the future, this network could be expanded substantially by extending the FRSF trail system to connect with the current and planned Price and Rusk county ATV trails. This link would create a trail system stretching from the National Forest trails on the north to the county trail systems to the south.

Trail Development Level

The regional trail system in the FRSF area offers a range of trail treads and experiences. Trails within the Chequamegon-Nicolet National Forest have both linear, well-developed trails, and narrower, less developed trails. ATV trails on the FRSF are wide and well-developed to accommodate snowmobile trail grooming equipment. Demand within the region is for narrower, winding trails, which offer a more intimate and challenging riding experience.

ATV Camping and Day-Use Facilities

There are few public day-use and overnight camping facilities in the FRSF region that connect directly to ATV trails. Campgrounds on the FRSF do not have direct access to ATV trails on the property, and most ATV riders access forest trails via the Tuscobia Trail access points. Two county campgrounds northeast of the property connect to the regional trail system, and have been modified to allow ATVs. There may be a need to provide additional, camping and day-use support facilities for ATV users on the FRSF property.

CONNECTIVITY TO OTHER PUBLIC LANDS

The FRSF is located adjacent to several public lands. The Chequamegon side of the Chequamegon-Nicolet National Forest, Price, Rusk and Sawyer county forests, and some parcels of private land all adjoin the FRSF boundary.

Proximity to public lands and recreational trails outside of the forest boundary presents potential for expanding the FRSF boundary to connect these public lands. Advantages of linking public lands include expanding natural communities, wildlife habitats, and wildlife travel corridors for ecological purposes. Likewise, potential may exist for linking recreational trails for the purposes of hiking, hunting, biking, ATVing, or snowmobiling.

Segments of the Flambeau River currently in private ownership are increasingly being sold and subdivided. This is especially true to the north of the property to Park Falls, and the along the South Fork of the Flambeau River Opportunities to expand public ownership of the river frontage would provide recreational benefits, including increased river access and preserving undeveloped shoreline.

Education and Visitor Services

While it is difficult to assess the demand for education and interpretation programs within the FRSF region, educational opportunities in or near the FRSF are lacking. The need for additional educational programs, naturalists, and interpreters was identified as an issue in the 2005-2010 SCORP report.

Opportunities to expand and enhance these programs on the FRSF should be explored. Visitor experience could be enhanced through interpretation of Flambeau River history and conservation, forest ecology, and management.

Upper Flambeau Unit

The "Upper Flambeau Unit" is disconnected from the core property by more than 30 miles, with the City of Park Falls in between. The Upper Flambeau Unit has no developed recreation amenities, and serves primarily as a buffer along the Upper Flambeau River. The lack of proximity to the state forest headquarters makes this area difficult to manage by state forest staff. This segment of the property does adjoin the Turtle Flambeau Flowage Scenic Waters Area, and may be more efficiently managed as part of that property.

CONCLUSIONS

The Flambeau River State Forest is a hidden gem in a predominately rural region of north-central Wisconsin. The property is notable for its large block of contiguous forest with a variety of forest types and a mix of age classes. The Flambeau River

is the major natural feature on the property, and one of the original reasons for establishing the state forest. Significant ecological features, including large blocks of contiguous forest, undeveloped lakes, streams, and wetlands, and forest, wetland, and water communities offer management opportunities to meet a wide range of ecological and habitat needs. Because of the property's large size and unique environment, it is also home to several state and national endangered and species of special concern. The North-Central Hardwood Landscape is a predominant feature of the forest, proving the opportunity for the production of high quality hardwood trees, while also enhancing the ecological integrity of the state forest.

Recreation on the forest is primarily nature-based, with opportunities for wilderness and backcountry experiences. The large size of the FRSF, as well as its proximity to other public lands in the region, presents a unique opportunity to provide a wide range of recreational uses and facilities, while still maintaining user separation. As demographics change, and more people seek opportunities to recreate, the forest's natural features make it a potential recreation destination point, primarily focused around the Flambeau River. The Flambeau River is one of only a few rivers in the state that provides over 50 miles of undeveloped river frontage, creating a "wild" experience.

Given its unique natural features, dense forest cover, water resources, and large blocks of remote areas, all in a remote, sparsely populated part of the state, the Flambeau River State Forest has the potential to provide significant social, ecological, and economic benefits now and in the future.

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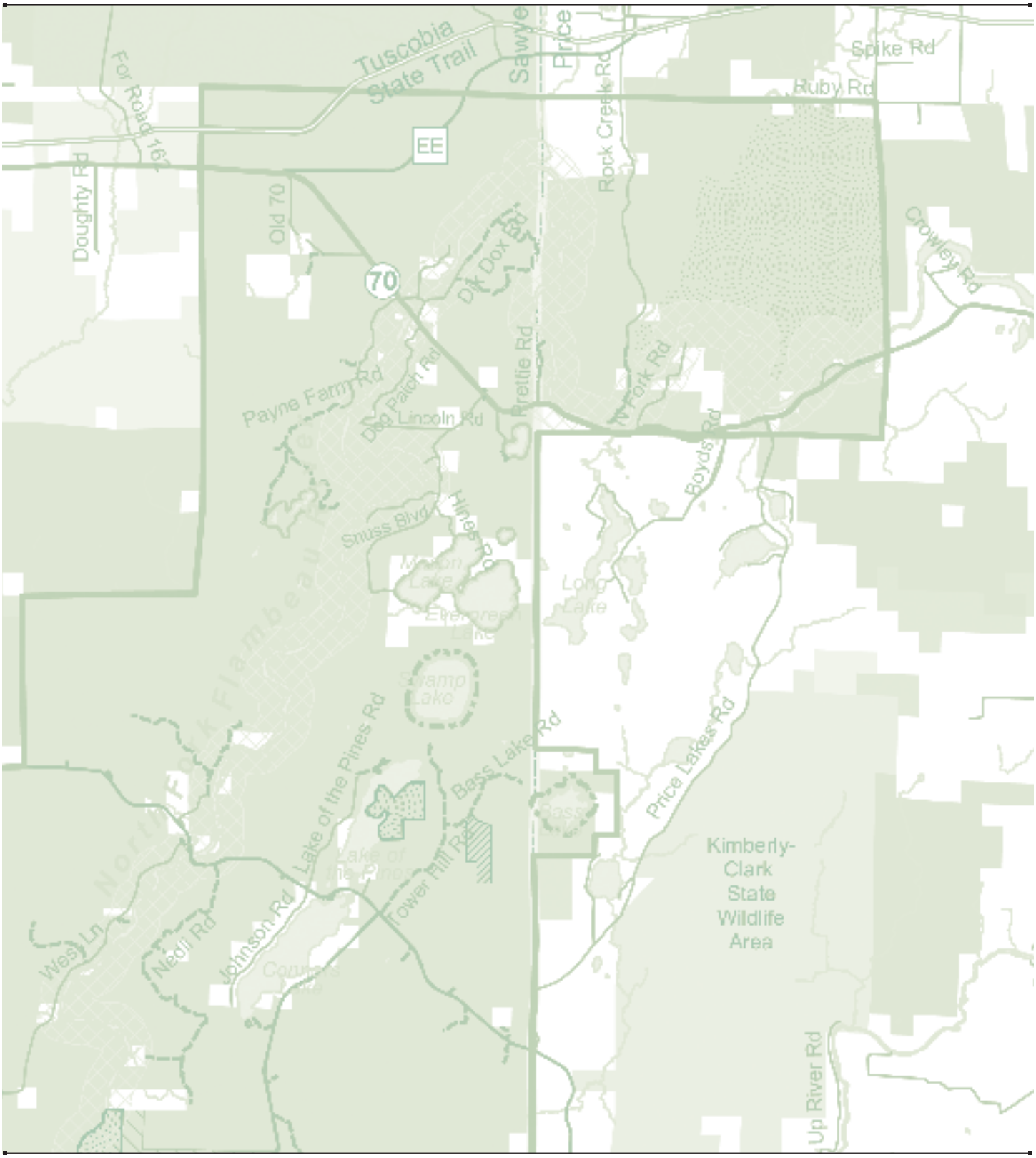

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